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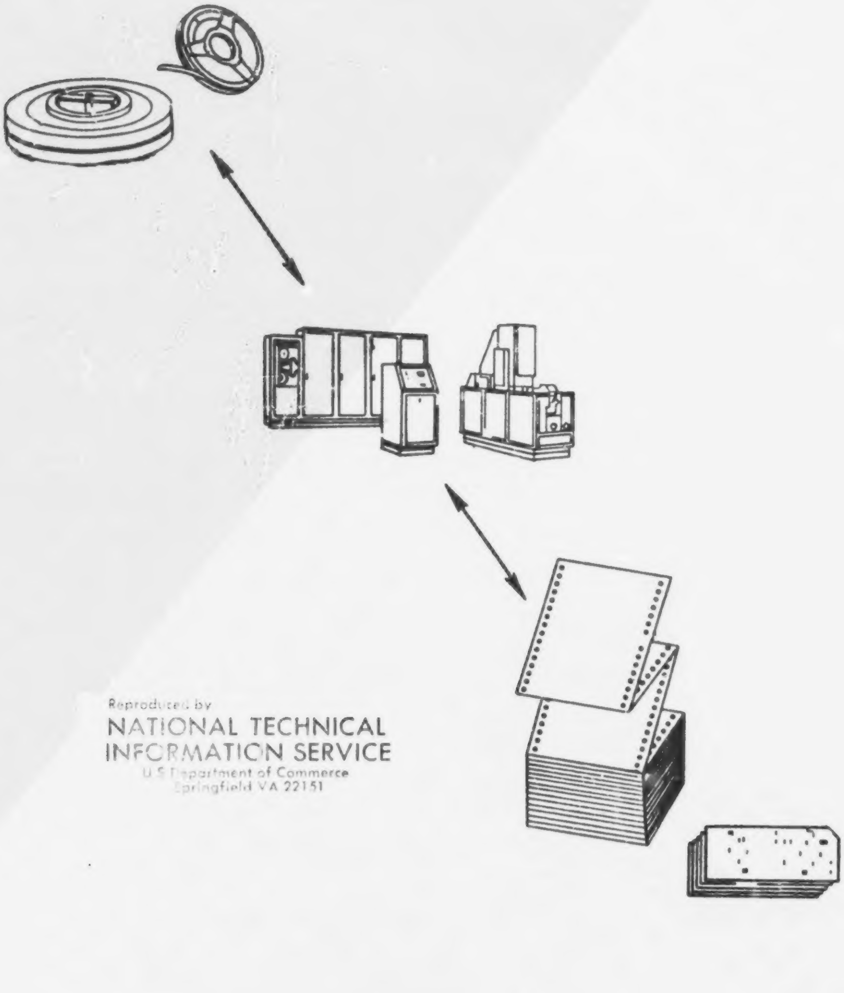
PB 210 716

ENFORCEMENT
MANAGEMENT
SYSTEM

USERS GUIDE



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S. G. Shanks, R. R. Hippier and E. Cohen

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A system was developed for use by air pollution agencies at the state and local levels. The system records, monitors, summarizes agency actions in the enforcement and surveillance area. It provides staff members with schedules of planned future actions and summaries of emission source oriented data. The system is available in three versions, tailored to agencies of different resource levels. Two of the levels are computerized and provide automatic monitoring of operational activities.

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MARCH 1972

USERS GUIDE

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RESEARCH TRIANGLE PARK, N. C. 27711

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This report was furnished to the Environmental Protection Agency by The Research Corporation of New England in fulfillment of contract number 68-02-0079. The contents of this report are reproduced herein as received from the contractor. The opinions, findings, and conclusions are those of the authors and not necessarily those of the Environmental Protection Agency. Mention of company or product names does not constitute endorsement by the Environmental Protection Agency.

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1.0 MANAGEMENT GUIDE

The Enforcement Management System provides an organized methodology for use by state and local air pollution agencies to control enforcement activities. Modern information processing techniques have been applied to this area, including mechanized processing of enforcement data which utilizes electronic computers. The system emphasizes management control of the enforcement function, and establishes standardized methods of handling data. It produces a variety of reports and summaries to meet the needs of various agency staff members. Installation of this system in an air pollution agency should improve the efficiency of the enforcement function, and greatly increase management's ability to control this operation. In addition, the system provides greatly improved access to information which has been gathered over a period of time so that this information can be made available quickly for a number of purposes including external reporting requirements.

All members of the staff should benefit from the installation of the Enforcement Management System:

- Agency management will obtain improved operational control over the enforcement function. Control is effected through the monitoring of summary reports which are produced on a periodic basis. Reports summarize actions that have been completed and indicate any scheduled actions which have not been performed.

- Engineers, inspectors, and other staff members will have better access to specific source records relating to individual establishments. Details of agency interaction with those sources and details concerning the specifics of the source itself are made available in a form substantially improved over typical agency operation.

Advantages to the heads of individual sections, such as Engineering and Inspection, are as follows:

- Scheduled actions and consequent workloads are highly visible to the section head through the schedule reports. The section head can evaluate the upcoming workload in terms of available personnel and schedule changes in routine activities based on this information.
- The system provides basic information for the evaluation of personnel through the summaries of actions that have been performed.
- Access to specific details of agency interaction with pollution sources is greatly improved and the availability of such source data should save the section head substantial time.
- The need to perform clerical work by technical and professional personnel is reduced. Clerical personnel will be relieved of the preparation of routine letters through the system's ability to prepare automatically certain standardized letters to sources.
- The necessity to maintain a file to indicate when future actions such as review and inspections should be performed is eliminated.
- Source data is made readily available in centralized locations so that preparation for interaction with the source is minimized.

The system is available in three levels of activity for different sized agencies. Basically, all three systems are similar in that they emphasize the preparation and handling of similar reports and forms. The first level (level 1) is entirely manual and does not require the use of computing equipment. It provides many of the benefits of the system for a minimum expenditure of time and resources. The Standard Computerized System (level 2) requires the use of a small-to-medium capacity general purpose computer. It does substantially more than the manual system and provides additional reports beyond the capabilities of the manual system. The Advanced Computerized System, an extension of the level 2 system, provides a measure of automatic action scheduling. It is completely compatible with the level 2 system and the transition to the advanced system can be made with minimum difficulty.

The basic outputs produced by the computerized versions of the system are listed below. Detailed explanations of the individual outputs are included in Section 3. The outputs are:

- Source Action Summary
- Overdue Action Report
- Geographic Locator
- Action Cards
- Source Registration Report
- Future Schedule Summary
- Standardized Agency Letters
- Edit and Update Report

The Enforcement Management System (computerized versions) is designed to handle data from more than one agency. Often, both local and state agencies within the state interact with pollution sources. In some cases, agencies may have jurisdiction over certain types of sources but must rely on larger state agencies for assistance in dealing with complex sources. In other cases, agencies may have a clear geographic jurisdiction but must follow the same general regulations. Each source can be coded to indicate the agency which has jurisdiction. Reports prepared by the system segregate source data by agency, and can be readily separated for distribution to a number of separate agencies.

Utilizing the system's capabilities, a single agency could operate the Enforcement Management System for a number of agencies in a given geographic area. Some of the possibilities are indicated in the attached diagrams, Figure 1.1, and 1.2.

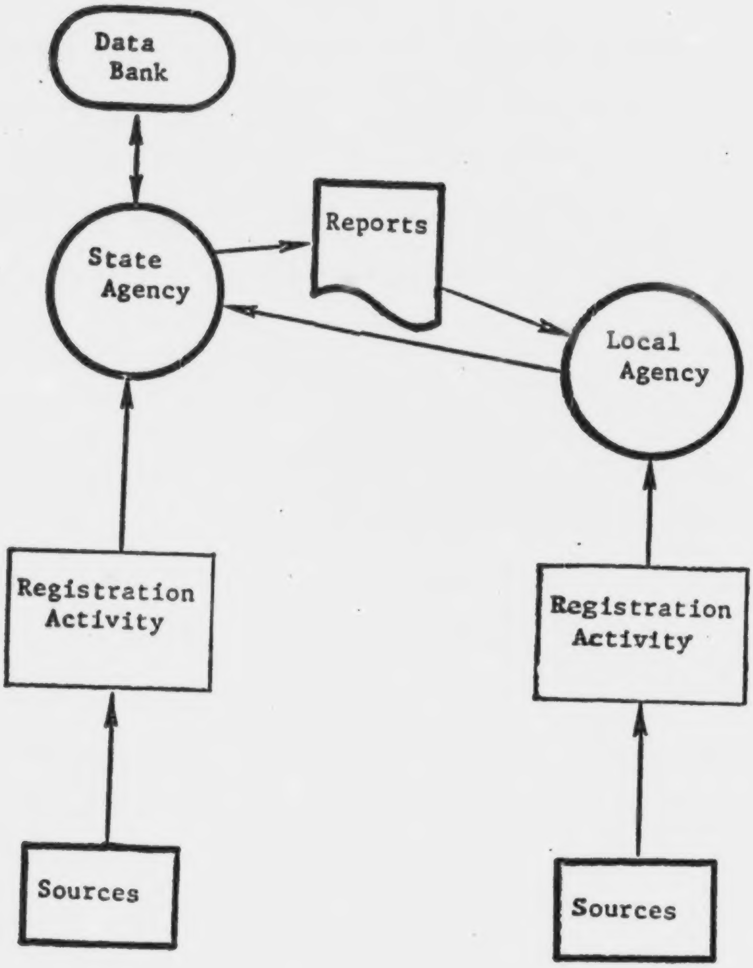

Data Bank
State Agency
Reports
Local Agency
Registration Activity
Registration Activity
Sources
Sources

Figure 1.1 Data collection flow.

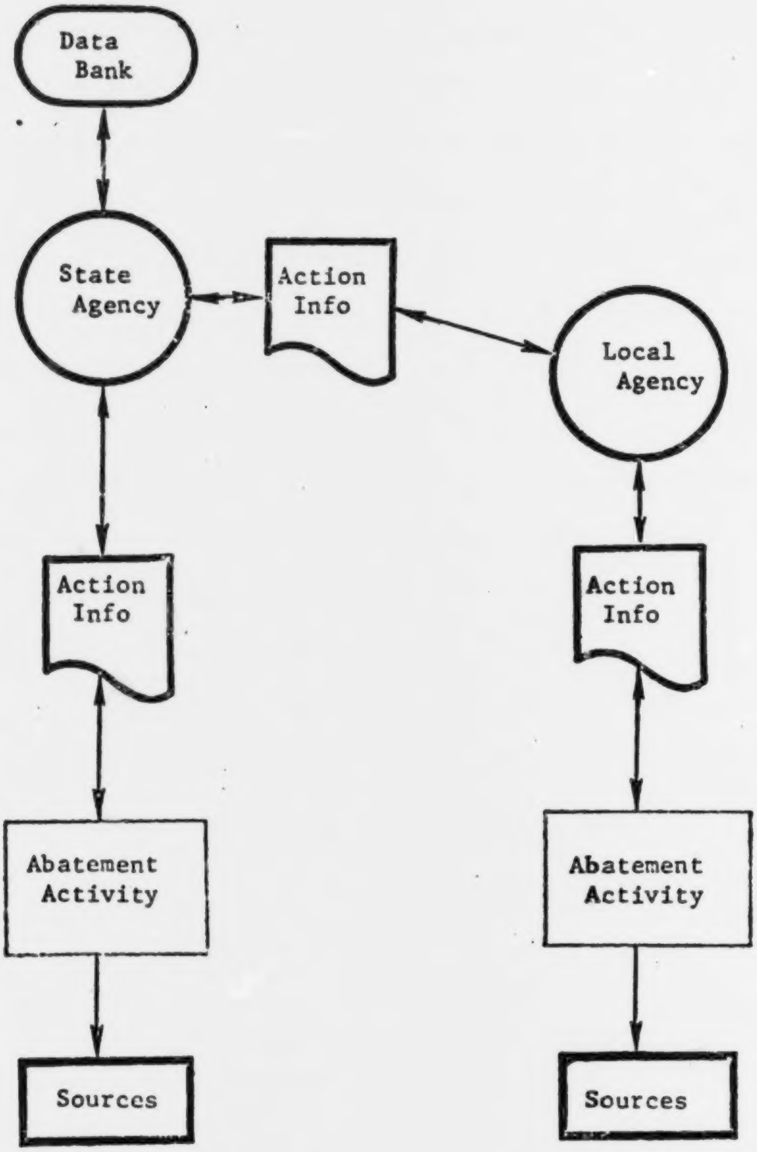

Data Bank
State Agency
Action Info
Local Agency
Action Info
Action Info
Abatement Activity
Abatement Activity
Sources
Sources

Figure 1.2 Data flow, abatement actions.

The Enforcement Management System has been developed for use by state and local air pollution agencies. The system utilizes general principles and procedures which may also be of use to other agencies concerned with the environment. In particular, state agencies concerned with water and with solid waste may find the system of value. The concept of the action card interacting with the data base to enable the system to produce specially tailored schedules and summaries of operational activities is applicable to agencies of many types.

Should such agencies develop an interest in the system, we recommend careful study of the agency requirements and of the system itself before action is taken. Modifications may be necessary to meet local needs. If this course is taken, contact should be maintained with the Office of Air Programs, in order to learn of changes and experience that may be available from other similar agencies. In addition, such experience as may be gained by each agency should be available for use of others at the state and local level.

2.0 SYSTEM DESCRIPTION

The term "Enforcement Management System" as used in this section refers to all three levels of the system: manual, standard computerized, and advanced computerized. Specific details of these levels are found in the next sections.

The Enforcement Management System schedules, tracks, monitors, and records a control agency's interactions with a pollution source. The system can be viewed as cyclical in nature, in that an agency's actions in relation to a particular source occur repeatedly over a length of time, one step leading to the next. The system tracks and monitors these steps, updating various files, schedules, and reports.

The output produced by the system is as follows:

Permit Letters, Registration Certificates and other orders and notices. These notices are produced automatically by the system when the results of an action call for such a letter or notice to be sent. These notices are printed on continuous forms on the computer, and can have the agency's letterhead preprinted on the form.

Action Card. These cards describe a single action to be performed. They are prepared by the computer system, with key information printed across the top of the card. The agency staff member who performs the action fills in the card after the action is complete. This is done by checking the proper preprinted spaces, and writing in any needed comments. The card is then returned to the system, which records the results of the action in the data base (the new information having been keypunched). The system may produce a variety of new entries on the various reports and a new action card, depending on the specifics of the information fed back to the system.

Future Schedule Summary. This report lists actions scheduled for the future. Separate reports are prepared for individual staff members, and for agency sections.

Overdue Action Reports. This report lists those actions which were not completed by the source or agency in the scheduled time.

Action Summary. This report lists all performed actions, with the reported results. The list is categorized by type of actions.

Geographic Locator. This report lists all sources that are being processed by the system in two sequences: by grid coordinates and by city and street address. Each new location shows all sources in the system.

Source Action Summary. This report shows past and scheduled actions relating to each source. The summary report contains results, staff comments, and other data relating to the actions, and provides a history of agency interactions with the source.

Source Registration Printout. This report lists data regarding the pollution source (including generalized company data), and data about specific emission points.

Taken together, these products comprise a means for an agency to control its enforcement actions. The system, which is depicted schematically in Figure 2.1, is designed around and depends on the action card concept. This

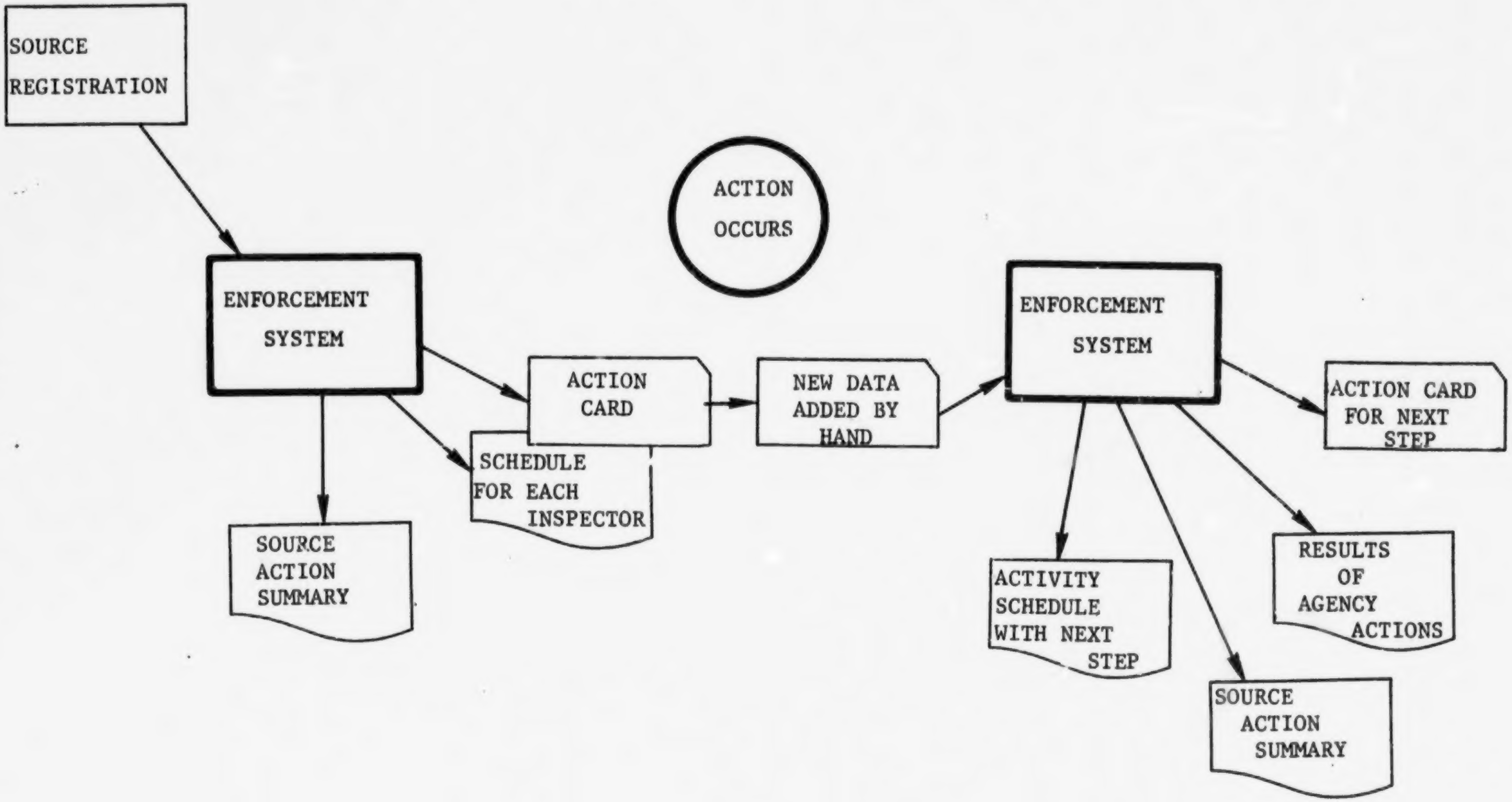
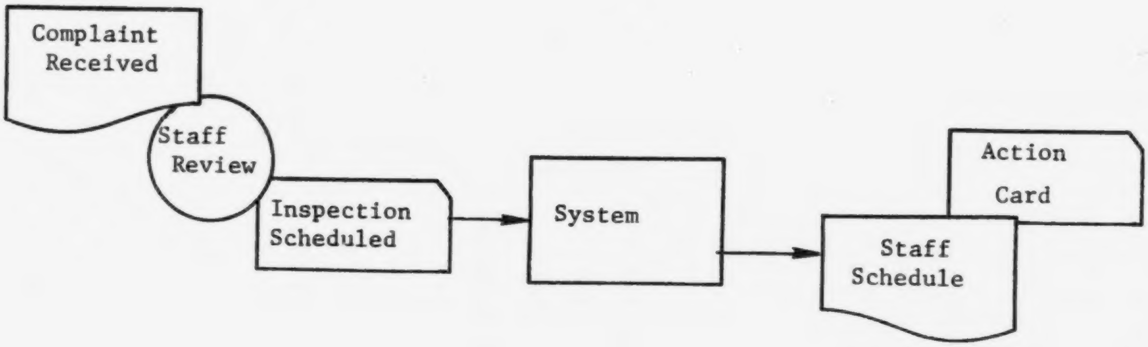

SOURCE REGISTRATION
ENFORCEMENT SYSTEM
SOURCE ACTION SUMMARY
ACTION CARD
SCHEDULE FOR EACH INSPECTOR
ACTION OCCURS
NEW DATA ADDED BY HAND
ENFORCEMENT SYSTEM
ACTION CARD FOR NEXT STEP
ACTIVITY SCHEDULE WITH NEXT STEP
SOURCE ACTION SUMMARY
RESULTS OF AGENCY ACTIONS

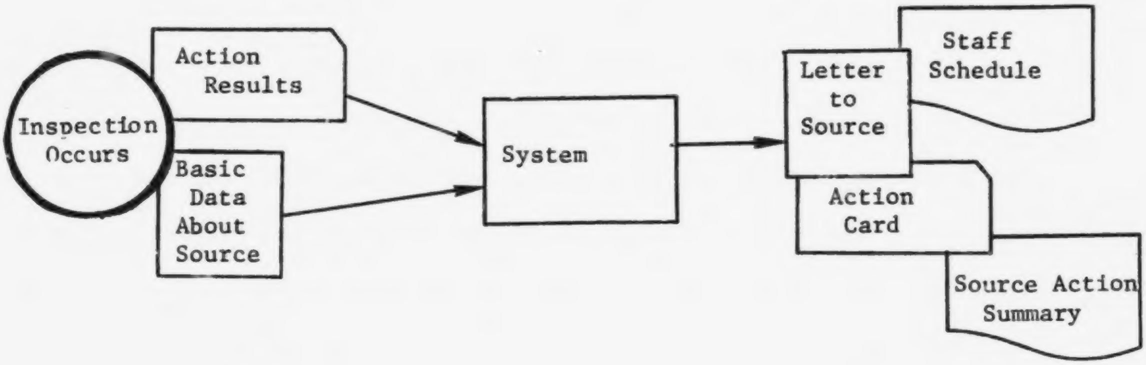
FIGURE 2.1. Enforcement system schematic, showing system monitoring of enforcement activities.

illustration shows a single cycle in the processing. An action (in this case, registration) activates the system. The system produces a number of reports and a new action card, which describes the next step and includes the assignment of the action to a staff member. When the action is completed, the action card is returned to the system. Annotated on the card are the action results and the next indicated step. In the advanced version of the system, many actions are assigned automatically. The system prepares a new action card for the next step and produces additional reports, which include the data regarding the completed actions and the new actions.

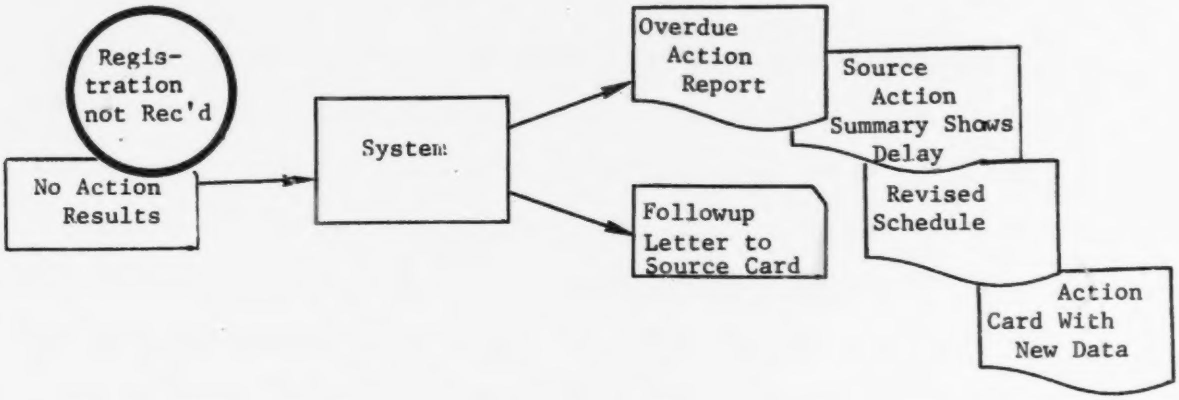
In more detail, a sequence of "actions" with a specific source might begin with the receipt of a complaint. The staff reviews the geographic locator to see if the source is known to the agency. An inspection is scheduled to verify the complaint. The system produces an action card for the planned inspection, and lists the inspection on the automatically prepared staff schedules.



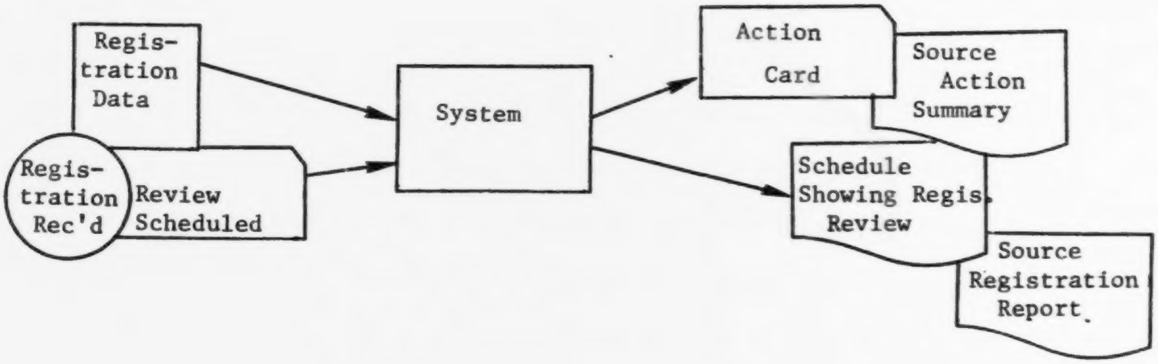
During the inspection a pollution source is discovered. Reference to the geographic locator or to the source registration printout shows that the source is not currently known to the agency. Basic data about the source is fed to the system and a date is scheduled for the expected receipt of the completed registration. The first action card is returned to the system with the results of the inspection and the next step indicated. The system produces a "registration requested" letter to the source, a new action card and staff schedule, and lists the completed action on the source action summary.


Inspection Occurs
Action Results
Basic Data About Source
System
Letter to Source
Staff Schedule
Action Card
Source Action Summary

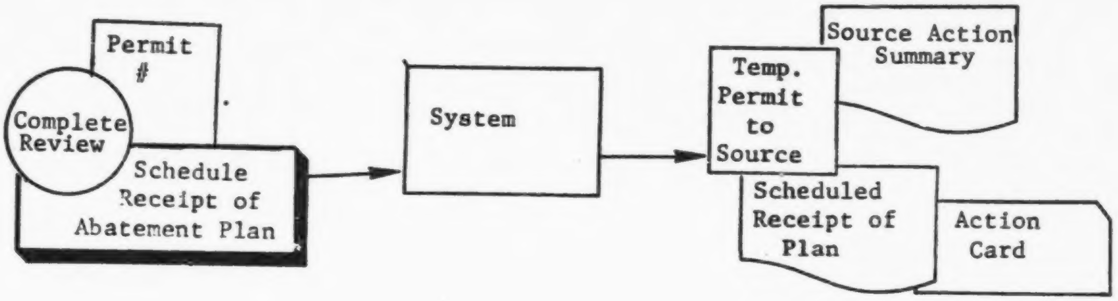
A delay is encountered and the registration date is rescheduled. The "non-receipt" of the registration causes an entry on the overdue action report. When the registration receipt date is rescheduled, the system prepares new printouts, reflecting the status of the action. The new staff schedules reflect the revisions.


Regis-
tration
not Rec'd
No Action
Results
System
Overdue
Action
Report
Source
Action
Summary Shows
Delay
Revised
Schedule
Followup
Letter to
Source Card
Action
Card With
New Data

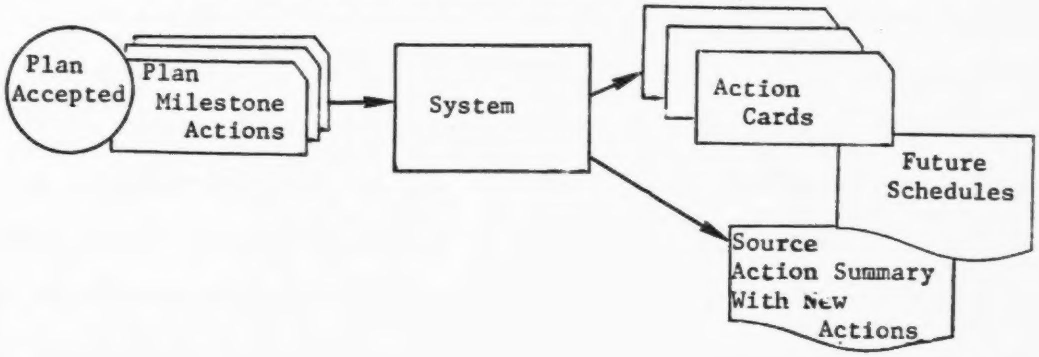
The registration form is finally received and a review of the registration information is scheduled. The action card is returned to the system with the review assignment date indicated, and a new action card is produced for the engineer who will perform the review. Data from the registration form are entered onto the master file, and the system produces a source registration report and updated schedules. The new schedules include the new "next action", as well as other new actions entered at that time.


Regis-
tration
Data
Regis-
tration
Rec'd
Review
Scheduled
System
Action
Card
Source
Action
Summary
Schedule
Showing Regis.
Review
Source
Registration
Report

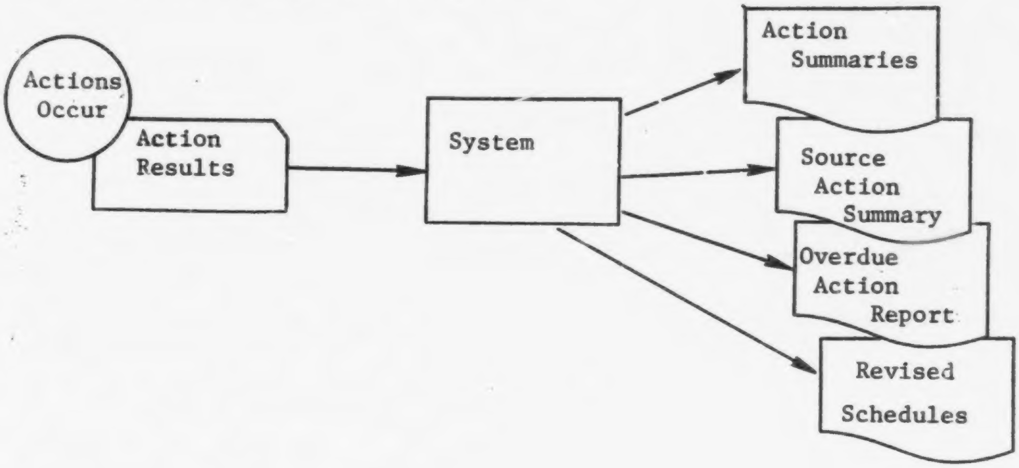
The review of the source information is finished, a temporary permit is issued if the source is not in compliance and a review with the source personnel is scheduled to establish an abatement plan.


Permit #
Complete Review
Schedule Receipt of Abatement Plan
System
Temp. Permit to Source
Source Action Summary
Scheduled Receipt of Plan
Action Card

The compliance schedule is established and the various steps or milestones for monitoring the plan are entered and scheduled. These schedules may extend over a period of months or several years into the future. The system will keep track of these scheduled actions until their scheduled performance time passes. If the action cards are not returned at the scheduled time, an entry will appear on the overdue action report.


Plan Accepted
Plan Milestone Actions
System
Action Cards
Future Schedules
Source Action Summary With New Actions

At every milestone date that has been entered, the system checks to see if the indicated action has been performed, and records the actions that have been accomplished.



It should be noted that the system features which provide for the entry of a number of future actions ideally fit the requirements of a compliance schedule negotiated between a local agency and a specific pollution source. Once the schedule has been agreed upon, the various steps can be entered into the system with the anticipated date of accomplishment indicated for each of the steps. The system will list each action on the various reports and summaries and produce action cards for each step. The various staff schedules that are printed will remind individual staff members of the dates and actions that are required. If the specific milestones are not accomplished on the dates indicated,the actions will be listed on the overdue action report. If changes are required in the schedule or if other modifications to the compliance plan are indicated,the new information can be entered by returning the appropriate action card to the system.

Modifications will be immediately reflected in the new reports from summaries which are generated. If the various actions indicated in the compliance schedule are completed on time, the action card is returned with the new information added. The system then records these actions as completed. At any point staff members can determine the status of the compliance plan for a specific source by reviewing the source action summary for that source.

3.0 STANDARD COMPUTERIZED SYSTEM

This section describes the Standard Computerized System which we recommend for use by agencies of all sizes. Larger agencies who will eventually want to use the Advanced Computerized System with its scheduling features should start off with the Standard System and move up. The programs are completely compatible and the data records and files that are maintained by the system can be used in the Advanced System without conversion. Should it be necessary to delay installation of this system, work can be started with the Manual System described in Section 5 of this report. The following sections describe the details of the system.

Section 3.1 describes the requirements for a project leader and data bank coordinator.

Section 3.2 describes the operation of the system from the standpoint of the computer analyst.

Section 3.3 describes the system operation, including sample forms.

Section 3.4 discusses input forms used in the system.

Section 3.5 provides actual samples of output forms.

Section 3.6 describes the files which must be maintained at the data bank coordinator's station.

Section 3.7 indicates steps that must be taken to start up the system.

Section 3.8 indicates the resources required to start and operate the system.

In addition, the Appendix to this report includes specific computer details of the system design. The Appendix consists of keypunch instructions for the various forms, data record layouts of the master file, JCL (job control language) printout for operation under both Disk Operating System

(DOS) and Operating System (OS), and layouts of specific card formats such as agency letter formats, schedule card layouts and personnel card layouts, system and program narratives, and program maintenance procedures.

3.1 Project Leader and Data Bank Coordinator

For most agencies, two individuals should be designated to direct the system activities within the agency. The data bank coordinator (DBC) should be full-time. The other, the project leader, would act only in an advisory capacity but would serve to direct the efforts of the data bank coordinator in the operation of the system.

The project leader should be an experienced management official in the agency, perhaps the Assistant Director or similar individual. He should be capable of working with the section leaders in the agency and should understand their technical problems. He will be the guiding force behind the installation of the Enforcement Management System and should be in a position to negotiate with other agencies who may desire to implement the system using the multi-agency features. He need not be directly acquainted with computer procedures,as necessary program maintenance and other related functions should be performed by someone who is directly associated with the computer installation. The project leader's functions are:

- Oversee the operation of the system
- Coordinate difficulties which may arise in system operation
- Follow up on management reports from the system, including presentation of these reports to others
- Provide and promote vigorous management involvement in the system.

The position of data bank coordinator is highly important to the success of the system installation. For all but the very small agencies, we recommend that this position be full-time. However, this is not a net addition to the staff,since some of the system functions that are being performed by the coordinator replace existing functions that would have to be performed in any case. The coordinator may be chosen from existing agency personnel, or should be experienced with air pollution control agency procedures. He or she should be experienced in dealing with people at all levels and have been exposed to computerized systems of one type or another.

The exact functions of the data bank coordinator will vary with agency size and practice. In a small agency, the coordinator may do other tasks including maintenance of certain files related to the system. However, it is necessary not to burden the data bank coordinator with tasks which will detract from his ability to keep the system functioning. Specific functions are as follows:

- Provide training for agency staff members who will participate in system operation.
- Maintain various files and computer printouts for use by staff members.
- Monitor and maintain the flow of data to and from the computer installation and to and from the various staff sections.
- Monitor use of the information and reports generated by the system.
- Provide assistance for filling out the various entry forms by staff members. This activity is particularly important in the preparation of action cards and manual action cards.
- Review workloads with section heads based on the future schedule summaries. Such review with the various section heads should provide the staff members with the ability to make better decisions regarding their utilization of technical personnel. In addition, reviews will provide the section heads with

better information regarding the capabilities that the system offers them in the management of their sections.

- Monitor the system's automatic scheduling features for the advanced level of the system.
- Release standarized letters, permits, etc. produced by the system to sources, usually through the mail. The DBC checks the outgoing letters to ensure that the originator requested the correct standardized letter for the particular situation. If the amount of standard material being released becomes voluminous, it may be necessary to require the staff originator to check to see that the material is being sent to the source he originally intended. Then the DBC would be responsible for checking to see that the staff member had concurred (through signature or initials) prior to mailing the material.

3.2 Computer System Description

The computer segment of the Enforcement Management System accepts, updates, and summarizes information regarding sources of air pollution and emphasizes the enforcement function, its control and management. The Computer Processing Schematic, Figure 3.1, identifies the various aspects of computer processing that the system will undertake.

The first run, the update run, accepts as input the old master file, which is maintained on magnetic tape or disk. This file was initiated during startup and contains both action data regarding individual emission sources and registration information which has been collected. Additional input consists of action cards being returned to the system with additional data keypunched from handwritten comments on the cards themselves, new source data, and a deck of miscellaneous change data (changes and deletions to current master file) collected by the agency. These two decks of cards are put on tape and then sorted and matched against the master file. A control card and a personnel card file are also used as input. The information on the master file is updated and new data are added reflecting the new and changed information. There is also an option to delete existing information. As part of the update process an edit and error list is printed which indicates all changes made to the file and reports errors in the input data. Output from the run is an updated master magnetic tape which is used for further processing; therefore each processing cycle produces a new master tape. It is recommended that agencies retain a number of generations of this tape for backup purposes in case processing errors occur.

The normal processing cycle would next include an extract run which pulls

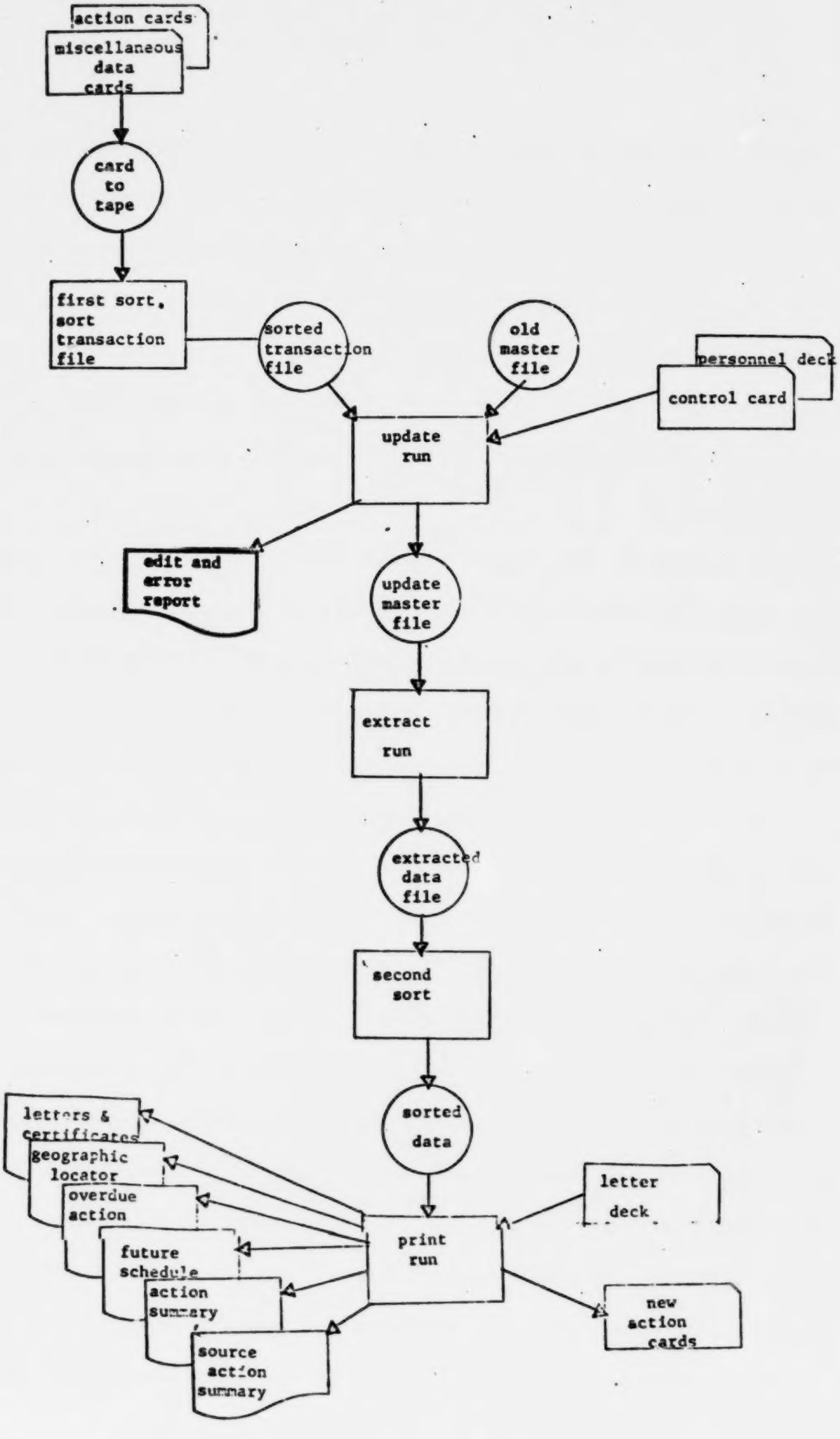

action cards
miscellaneous data cards
card to tape
first sort, sort transaction file
sorted transaction file
old master file
personnel deck
control card
update run
edit and error report
update master file
extract run
extracted data file
second sort
sorted data
letters & certificates
geographic locator
overdue action
future schedule
action summary
source action summary
print run
letter deck
new action cards

Figure 3.1. Computer processing schematic.

data from the master file for the various reports which will be printed. In some cases, information from one record of the master file may be extracted a number of times for different reports. Each extracted record will have a fairly lengthy sort key which will enable the system to sort records for each report together. The sort will also group records by agency in the proper sequence for each of the reports as well as for new action cards to be sorted. The output from the extract run is a magnetic tape of extracted data.

This tape is then processed by a standard IBM 360 sort. Modifications for sorts available from other producers of computer equipment will be relatively easy to make since the sort key will consist of several fields arranged continuously. The sort produces a magnetic tape with the records in appropriate sequence. This tape is the input to the print run.

If registrations, permits, letters, etc., are to be printed, a special deck of cards is entered, reflecting various prewritten or "canned" letters which are to be sent directly to various sources. These letters are designed to be printed by the computer on continuous forms preprinted with the control agency's letterhead. At the bottom of Figure 3.1 from left to right, the first output from the print run is the letters and certificates just discussed. The next product is the geographic locator which is printed in two versions: one in sequence by grid coordinates, and the other in sequence by city and street. The next report is the overdue action report which, like the geographic locator, is printed on plain computer paper. The future schedule summary is a basic report which is distributed to all users of the system and indicates actions that are scheduled for the coming week, as well as actions scheduled further in the future. The action summary report is a summarization of actions which have occurred in the past, arranged for management review; this report indicates the results of the action when it has been reported. The source action summary is classified by individual source, and includes all actions that have been recorded relating to each source, including those planned for the future. These actions are grouped by individual emission point. For example, an individual manufacturing plant may have both a boiler and process emission. These are treated separately and actions relating to each are grouped together. For actions which relate to the entire plant, such as generalized complaints or letters, a general category identified as emission point 000 is established and general actions are grouped on the listing at that point. The final output from the print run is the new action cards. These have to be either interpreted or printed across the top in some way (such as by use of a keypunch machine with the printing option installed). The cards themselves are preprinted. A sample action card is shown in Section 3.4 , Figure 3.4. Certain actions common to most agencies are indicated in the preprinted portion of the card. Agencies may perform different actions, or call similar actions by different titles. It is anticipated that each agency will want to prepare its own list, perhaps working with a representative of the Office of Air Programs, to develop its own format. The system is completely flexible and is not limited to the actions that are indicated in the samples. One action card design will allow spacing for printing across the top of the card using standard interpreter spacing (60 characters per line), and another using standard keypunch spacing (80 characters per line). Either design may be chosen.

A few general notes that will relate to several reports are appropriate. When "comments" are to be entered, the staff members can enter up to 495 characters, and the keypunch operator will punch additional cards to enter the data. These data will be keypunched into additional cards by the keypunch operator and retained by the system on the master file.

The general file sequence logic will depend on a source number which will be random in nature and will be assigned consecutively by agencies. If two or more agencies are being run at one center, they may duplicate source numbers, since an agency code is included in the record.

Included in the sequence logic will be a three-digit emission point number. Agency actions are numbered individually.

The person entering a new action card for a particular source may not have the action summary report before him, and so may not know the next sequential action number. He can simply enter "99" as an action number, and the system will convert the "99" to the proper sequential action number.

When an action is against the entire source, the system will create an emission point numbered 000. Therefore, an emission point should never be assigned 000, as this will be provided when a new action card enters the system with emission point 000, and action number 01. This emission point is really a "catchall" for complaints and other actions which apply to the entire source. The phrase "entire source" is automatically entered in the description field when this record is printed on the various reports.

3.3 Operation of the System

In the general operation of the Enforcement Management System, it is assumed that the agency views pollution emission sources as being divisible into specific emission points. This is the normal philosophy of enforcement operation. Basic records maintained by the Enforcement Management System consist of general information about a source, and additional information about the specific emission points that exist within a source. A source number field is provided and a subfield is provided for emission point numbers.

The "permit unit" concept utilized by the individual agency has a significant effect on the operation of the system. Local practice varies in the assignment of registration numbers and permits to specific emission points. In some cases, a registration number applies to the entire source, but specific permits are issued to individual emission points. Occasionally, agencies have decided to assign permits to control devices separately from the processes to which they may be attached.

The system handles this as follows: A source number is assigned permanently to each source. Each emission point not only has an emission point number, but can also be assigned a registration number and a permit number which are changeable at any time. Both the registration number and the permit number have been made large (12 digits) so that any manner of coding may be incorporated.

Some agencies may wish to include the source number as the first digits of the registration number or the permit number. In other cases where separate numbers are desired for the air pollution control device and the process itself, the emission point registration number could be used for the process and the permit number field for the device.

Discussion in this documentation assumes the assignment of emission point numbers by like device or emission type. Registration numbers are assumed to be assigned by the process of simply filing a description with the agency. Space has been provided for a registration number which may be different for each emission point. Because practice varies substantially from one agency to another, it is suggested that the data bank coordinator maintain control of the numbering process and maintain a manual ledger of number assignments. The source number is of particular significance to the system operation and this may be cross-referenced to an alphabetical list, although in most cases those desiring to find the source number of a particular source can do so with the geographic locator.

Normal interaction of an agency with a specific source follows the steps which are indicated in the attached Figure 3.2. Systems actions on the flow chart are shown in the blocks with rounded ends. For example, "Issue permit, schedule reinspection" indicates a system action.

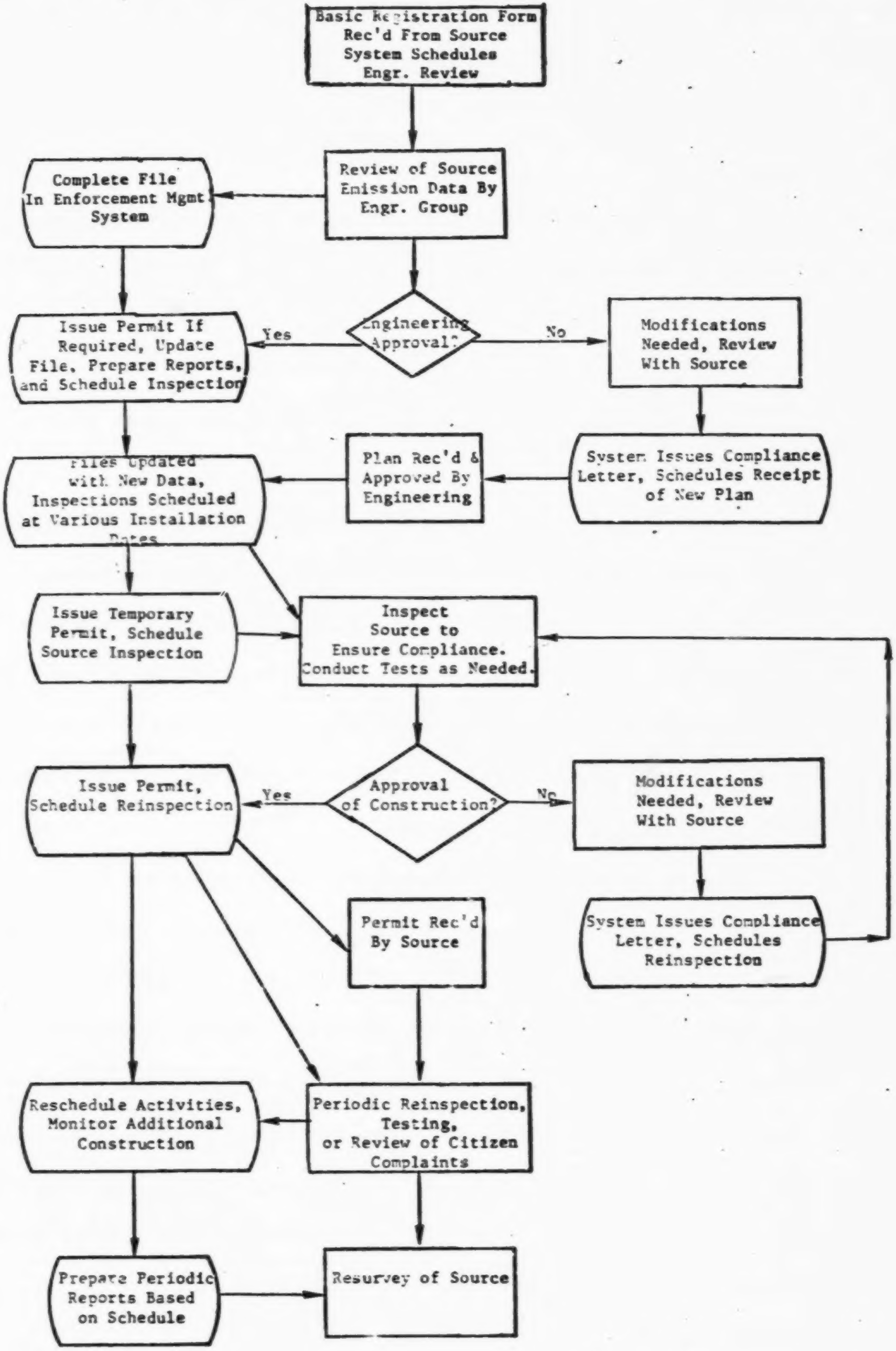

Basic Registration Form Rec'd From Source System Schedules Engr. Review
Review of Source Emission Data By Engr. Group
Complete File In Enforcement Mgmt System
Engineering Approval?
Yes
No
Issue Permit If Required, Update File, Prepare Reports, and Schedule Inspection
Modifications Needed, Review With Source
Files Updated with New Data, Inspections Scheduled at Various Installation Dates
Plan Rec'd & Approved By Engineering
System Issues Compliance Letter, Schedules Receipt of New Plan
Issue Temporary Permit, Schedule Source Inspection
Inspect Source to Ensure Compliance. Conduct Tests as Needed.
Approval of Construction?
Yes
No
Issue Permit, Schedule Reinspection
Modifications Needed, Review With Source
Permit Rec'd By Source
System Issues Compliance Letter, Schedules Reinspection
Reschedule Activities, Monitor Additional Construction
Periodic Reinspection, Testing, or Review of Citizen Complaints
Prepare Periodic Reports Based on Schedule
Resurvey of Source

Figure 3.2. System actions.

3.4 Input Forms

Input forms for the Enforcement Management System consist of four keypunchable documents as follows:

- Source Data Form
- Emission Point Entry Form
- Action Card (machine-prepared)
- Special Action Card (hand-prepared)

These forms are prepared by staff personnel and keypunched onto standard 80-column punched cards for entry into the Enforcement Management System. The data elements and the use of each form are as described below:

Source Data Form - This form is the basic entry mechanism for general information about the company, or other emission source. A copy of this form is included in this report as Figure 3.3 . The following data elements are included on this form:

Agency Code - This is a number which is preprinted on the form itself. This data field is used when the system is operated for a number of agencies or locations. Numbering in the various agencies may follow any numeric sequence. If it is desired to separate reports and other data by offices of a particular agency, sources associated with the individual office should receive an agency code number different from that of the central office. For example, if a system were being operated for two agencies, the first might be numbered 010 and the second, 020. The offices of the first agency would then be 011, 012, etc; those of the second agency would be 021, 022, etc.

County Code - Each county in a particular state should be assigned a number and this number should be used in these data. Four digits are

Agency Code

SOURCE DATA ENTRY FORM

SOURCE DATA FORM

County Code ______ Source No. ______ Card Code 1

Coordinates UTM Zone (if used) ______

______ EW ______ NS

Source Name ______

Street ______ Number ______ Name

Time Factor ___.___ Update Code ___ N, C, or D

Card Code 2

______ City ______ State ______ Zip Code

______ Area Code Telephone ______ Contact

______ SIC Code ______ Agency Inspector No. ______ Agency Engineer No. Update Code ___ N, C, or D

Card Code 3

______ Source Description

Card Code 4 ___ Line Code (Leave blank except "C") Update Code ___ N, C, or D

Comments:

______

______

______

______

______

Figure 3.3. Source data entry form, source data form.

provided, although fewer digits may be used.

Source Number - This is a sequential number assigned to a source which is entered during the initial entry of the source data. A book should be maintained by the data bank coordinator to indicate the source numbering. The source number itself has no particular significance and may be duplicated when utilized by several agencies. The source number assignment book is simply a list of numbers and companies used to keep track of the last number assigned. Location of specific source data is by source number and should it not be known, the geographic locator can be consulted to determine the source number.

Card Code - This field is preprinted to assist in the keypunching process.

Coordinates - Three fields are associated with the assignment of coordinates to a specific source. These are UTM (Universal Transverse Mercator) Zone, the East-West Coordinate, and the North-South Coordinate. It is strongly recommended that coordinates be assigned to the various sources. However, it is possible to leave these fields blank without interfering with the operation of the system. "Zoning" these sources allows locating sources in specific areas. The ability to utilize the data that have been collected for modeling and simulation purposes depends on this zoning. Generally speaking, the UTM system is preferred. In this case, a zone indication is desirable unless the agency's jurisdiction is entirely contained in one UTM zone. If a longitude-latitude system is used, the zone field can be left blank. Each agency should decide what coordinate system it wishes to use and stick to it. It is also essential to decide on the positioning of the digits. For example, under UTM zoning, usually five digits are assigned. These should be located to the right of the coordinate field on the form itself and the keypunch instructions modified to indicate only the five digits. Longitude and latitude generally only consist of six digits.

Source Name - Show the company or other name of the source at this location. If the first word on the official title is "The" or a similar phrase, omit this and begin with the first significant word such as Acme Co., not The Acme Co.

Street - Show the number and name at the location of the air pollutant emissions.

Time Factor - This data element is usable only by the advanced computerized system; however, it is recommended that it be filled in by agencies using the standardized computerized system so that they may easily progress to the more advanced system. The advanced system utilizes this time factor in scheduling. The factor is a three-digit field indicating usual amount of time encountered in dealing with this source. This involves an estimate of factors such as complexity of operation, distance from agency office and so on. If 1.00 is entered, it is an average source. 2.00 indicates a difficult source, and .50 indicates a source of less than average difficulty. If no entry is made, the system assigns 1.00.

Update Code - The letters N, C, or D are entered here depending on whether the source is new, to be changed, or to be deleted. In order for the entry to pass the various computer edits, this field must be properly filled in. For example, if a change is intended but an N is entered, the edit routines will reject the cards being entered into the system.

City - This field is used for the city or postal address at which the source is located.

State - The two-digit postal abbreviation for the state is entered here.

Zip Code - This field is for the six-digit, numeric zip code of the address indicated.

Telephone - Show the complete telephone number at the location. The first three digits are the Area Code.

Contact - Indicate the responsible official at that location with whom the agency normally has contact or who normally handles pollution-related matters. This name will appear on letters, permits, and so forth which are generated by the system.

SIC Code - This code is the standard industrial classification code for the type of installation being considered. It should be entered if known

Agency Inspector Number - This number is assigned to a staff member of the air pollution agency who normally performs inspections at this installation. The first digit may be a letter which indicates the section to which the staff member reports. The second two digits are numeric and are assigned consecutively to staff members within that section.

Agency Engineer Number - This is the same as the agency inspector field except that it refers to the engineer who normally will analyze data from this particular installation.

Update Code - This field is handled as indicated as the previous update code field.

Source Description - This is a brief description of the type of installation at this address, such as: petroleum refinery, electric utility or heating plant.

Line Code - This field is associated with the comments to be entered below. Please note that it is left blank except when a change is desired in existing comments on the record. In this case, show the line number printed on the form and enter this number.

Comments - Comments concerning the emission source can be entered here. This might be a description beyond that included in the source description field, or might pertain to specific items in the relationship between the agency and the source. Up to 495 characters or comments can be entered.

Emission Point Entry Form - County Code, Source Number and Agency Code must be the same as the source data form entry for which this emission point is being made. An emission point entry should be made for every point within a particular source which is capable of emitting pollutants. See Figure 3.3A.

Emission Point Number - Number the emission point within a particular source consecutively starting with 001 and continuing until all the points are numbered.

Description - Indicate a brief description of the specific emission points, such as grey iron cupola, nitric acid still, or oil-fired boiler. If there are many similar devices in a given source, word the description so that the specific process being referred to can be unambiguously identified, using manufacturers' serial numbers or numbers assigned by the source.

Control Device - This field is for identification of any air pollutant device associated with this emission point, such as a bag house, precipitator, fabric filter, scrubbers, cyclones, etc.

Agency Code

SOURCE DATA ENTRY FORM

EMISSION POINT ENTRY FORM

County Code

Source No.

5
Card Code

Emission Point No.

Description

Control Device

Update Code N, C, or D

Pollutants

6
Card Code

Line Code
(Lv Blank
Except C)

Comments

Registration Number

Permit Number

Update Code N, C, or D

Figure 3.3A. Source data entry form,
Emission point entry form.

- Pollutants - This field is used to identify qualitatively the pollutants that are emitted from this emission point.

  Update Code - The same as that discussed under the Source Data Form.

  Comments - Additional comments may be entered here regarding specific points of description which may be required to describe the emission point. Any item of particular note may be entered. Up to 495 characters may be entered. Note, however, that there is also a comments field on the action card. Specific comments related to agency actions concerning this emission point should be entered there.

  Line Code - This field should be blank unless already existing comments from the file are being modified. In that case, the line number of the comments being changed should be entered and the entire line repeated.

  Registration Number - Show the registration number assigned to this emission point. Note that this number will appear on any letters going to the source.

  Permit Number - Show a permit number that has been assigned to this emission point. The permit number is also printed on letters going to a specific source.

  Update Code - Update code is the same as that which has been previously discussed.

Action Card

This 80-column card is prepunched with source - and point - identifying data by the system so that this data need not be entered for keypunching a second time. This card is designed to be filled in by the person performing the action indicated. In certain cases, items related to the next action may be filled in by a supervisor or coordinator. Usually, all or most of the data will be entered by the person whose name appears in the staff name field. See Fig. 3.4.

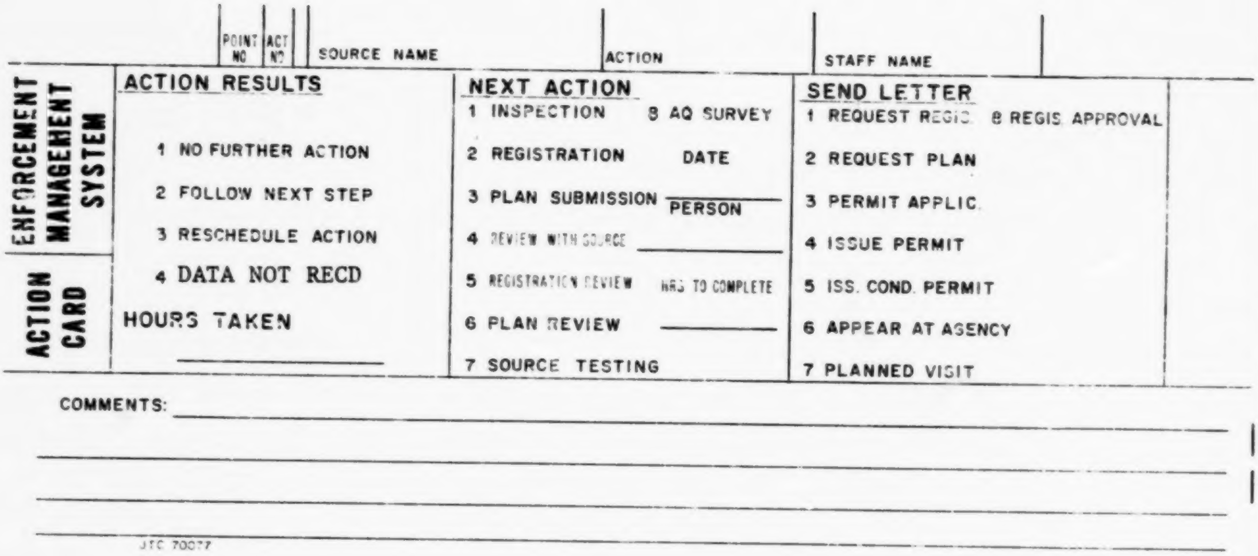
Action Results - This section of the card is used to indicate the status of the action indicated. If the staff member determines that his activities have completed the agency's handling of this activity, he circles the "1" next to the "No Further Action" printing. If further activity is indicated, he circles the "2" next to "Follow Next Step," and indicates the next step in the next action field, which is discussed below. If the activity has been rescheduled, this is indicated by circling the "3" next to "Reschedule Action" and the new date entered in the next action date field. "Data Not Recd." is used when the activity involved the receipt of information which did not arrive from the source. Note that local agencies may add other action results to the card, or may modify the wording of the individual items.

Hours Taken - This is the number of hours that were taken by agency staff to complete this action. Zero hours are shown if no actual activity was performed, or if the action is rescheduled.

Next Action - There are eight actions indicated here. These may vary from agency to agency based on local regulations and practices. The actions selected are typical of normal agency activities. It should be noted that each agency may vary the names of the actions, or the number of actions to be included.

Date - This is the date by which the action should be completed.

Person - This is the code number of the staff member who will complete the next action. In some cases the person's name may be entered and the data bank coordinator will supply the code. No entry need be made if the same staff member will perform the next action.



POINT NO | ACT NO | SOURCE NAME | ACTION | STAFF NAME

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

ACTION RESULTS

1 NO FURTHER ACTION
2 FOLLOW NEXT STEP
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN

NEXT ACTION

1 INSPECTION 8 AQ SURVEY
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
6 PLAN REVIEW
7 SOURCE TESTING

DATE

PERSON

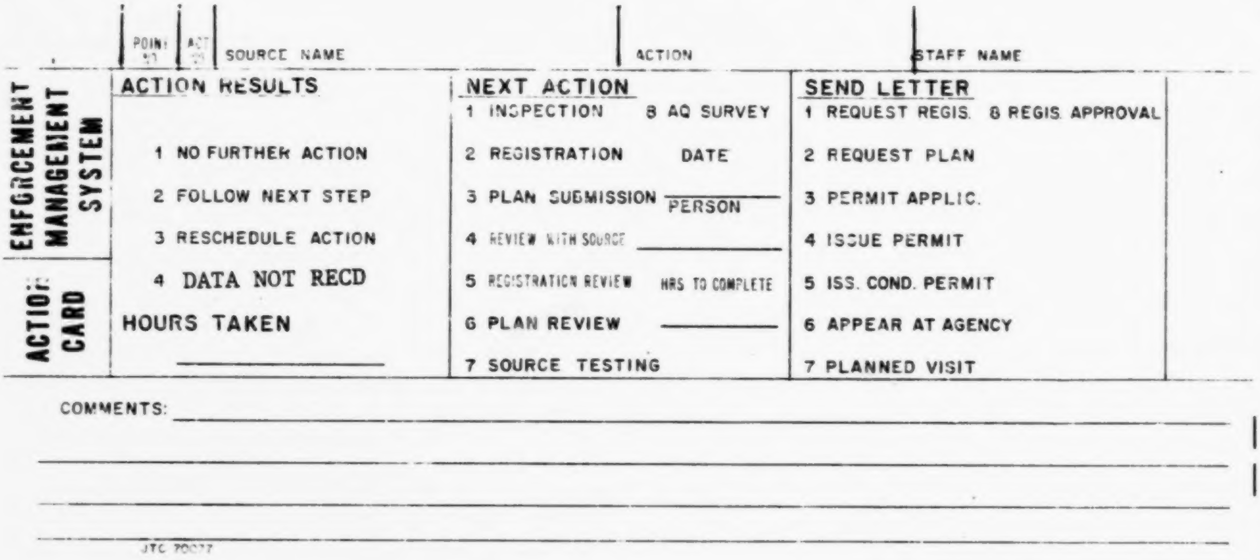
HRS TO COMPLETE

SEND LETTER

1 REQUEST REGIS. 8 REGIS APPROVAL
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT

COMMENTS:

JTC 70077



POINT NO | ACT NO | SOURCE NAME | ACTION | STAFF NAME

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

ACTION RESULTS

1 NO FURTHER ACTION
2 FOLLOW NEXT STEP
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN

NEXT ACTION

1 INSPECTION 8 AQ SURVEY
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
6 PLAN REVIEW
7 SOURCE TESTING

DATE

PERSON

HRS TO COMPLETE

SEND LETTER

1 REQUEST REGIS. 8 REGIS APPROVAL
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT

COMMENTS:

JTC 70077

Figure 3.4 . Action card. Design at top is for installations with interpreting keypunches. The lower design is for 60-column interpreters.

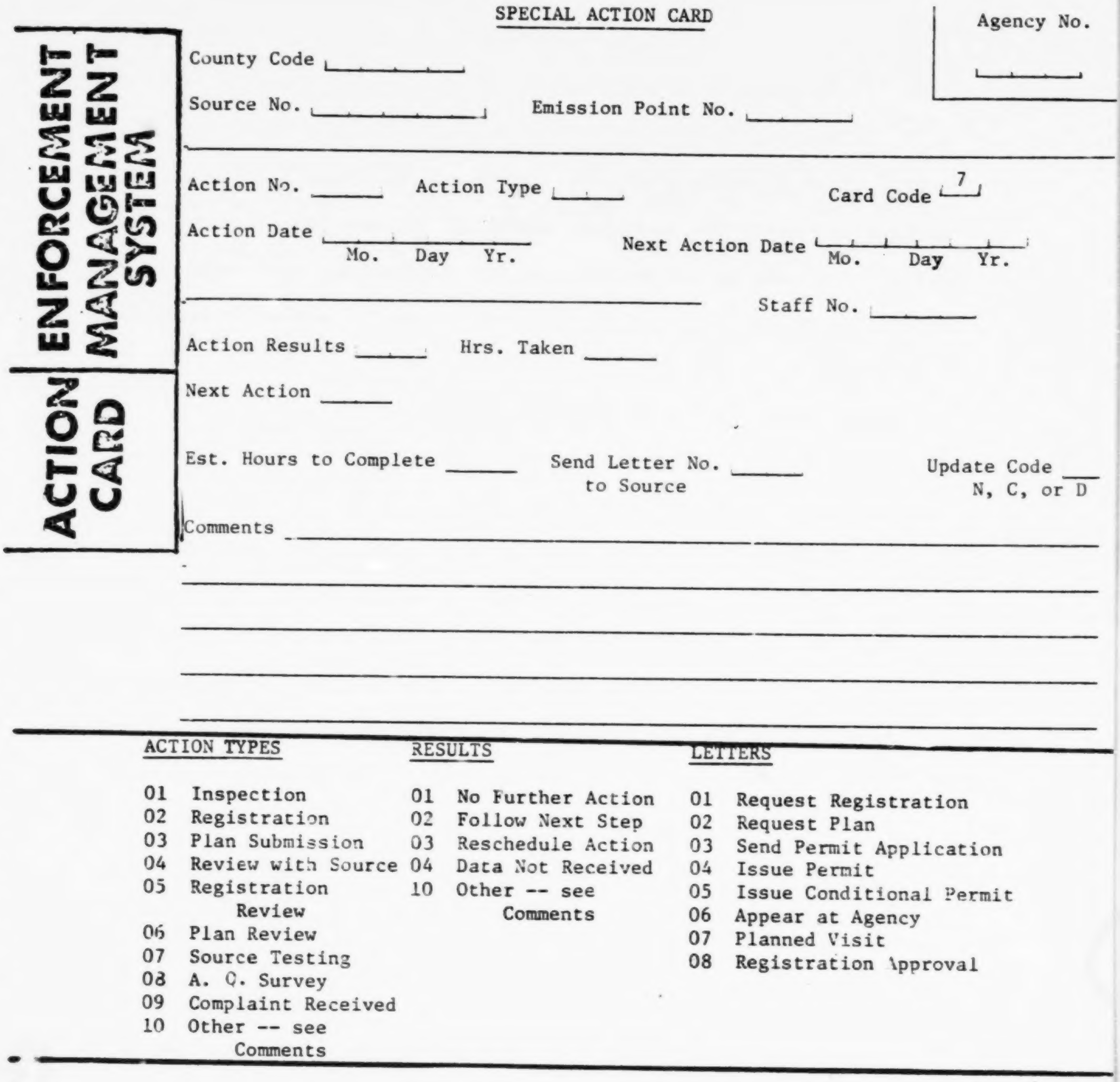
Hours to Complete - This is the estimated number of hours required to complete the next action.

Send Letter - These are letters or certificates which are standardized in format and routinely sent by the agency to various sources. Eight are shown on the sample card. The number of letters or certificates used by any particular agency and their text may be varied to suit local practice. Figures 3.11 through 3.18 show sample letters. Each agency may use a different set of letters, up to a total of 99 per agency. For practical purposes, however, only about 15 letter titles can be printed on the action card.

Comments - The person completing the action should fill in any significant comments in this portion of the card. These comments will be keypunched and entered into the system along with the action record. They will appear on the source action summary and elsewhere as appropriate. Comments to be written down should be helpful in analyzing the action that was taken and what is expected of the subsequent action. Up to 495 characters of data may be entered. Any unusual occurrences should also be recorded. If the new information relates to the emission point itself, however, the comments should be entered on an Emission Point Entry Form so that they can be associated with the emission point, not with the action.

Special Action Card - Data on the Special Action Card are the same as the mechanized card, except as indicated below. See Figure 3.5. The Special Action Card is needed to supplement the Action Card. It contains spaces to enter data which is prepunched into the Action Card.

The Special Action Card is used to enter or to schedule the first action



ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

SPECIAL ACTION CARD

Agency No. ____

County Code ____

Source No. ____ Emission Point No. ____

Action No. ____ Action Type ____ Card Code 7

Action Date ____ Mo. Day Yr. Next Action Date ____ Mo. Day Yr.

Staff No. ____

Action Results ____ Hrs. Taken ____

Next Action ____

Est. Hours to Complete ____ Send Letter No. to Source ____ Update Code ____ N, C, or D

Comments ____

ACTION TYPES

01 Inspection
02 Registration
03 Plan Submission
04 Review with Source
05 Registration Review
06 Plan Review
07 Source Testing
08 A. Q. Survey
09 Complaint Received
10 Other -- see Comments

RESULTS

01 No Further Action
02 Follow Next Step
03 Reschedule Action
04 Data Not Received
10 Other -- see Comments

LETTERS

01 Request Registration
02 Request Plan
03 Send Permit Application
04 Issue Permit
05 Issue Conditional Permit
06 Appear at Agency
07 Planned Visit
08 Registration Approval

Figure 3.5. Special action card.

in what may be a series of actions. It is also used when a series of actions relating to a particular source is entered at the same time as when a compliance plan is drawn up. A separate sheet is required for each action in the series. It will also substitute for a regular action card which has been lost or destroyed.

Agency Code - Preprinted on the form.

County Code - The county code for the source must be entered so that the record on the master file may be located.

Source Number - The source number is needed to locate the file on the master record.

Emission Point Number - This field holds the emission point number for the point relating to the particular action. The special action card is used to enter the first action in what may be a series of actions. In some cases, such as a complaint, the card can be used to enter a completed action and a next action at the same time. For example, a complaint and the resultant air quality survey, which are two actions, can both be entered with one card. In this case, the "next action" and the "next action date" fields indicate the subsequent action in the series. Otherwise these fields are left blank. In this case, when the first action has been completed, the actions and results are also filled in. When a single action is being entered, only the action number, action type, action date and staff number fields are entered. The estimated "hours to complete" field refers to the second action if one is entered. In this case, the "send letter" to source number may or may not be used depending upon whether it is desired to send one of the standardized letters to the source. The special action card may also be used to modify an existing action on the master file by use of a "C" in the update code field. The "C" or change entry is normally used before the action is actually performed. Normally an "N" (new) is entered at that point. Update code "D" is used if an action is to be deleted from the master file.

Other fields on the Special Action Card are the same as the action card. Note that the "Action Types" listed at the bottom are the entries to be used in the "Action Type" field. The "Action No." field is the sequential action number.

3.5 Output Reports

Shown on the pages following are sample output reports from test runs of the system. Each report is described briefly. At the end of the section a number of filled in action cards (machine produced and special) are shown to indicate typical entries that might lead to specific printout data.

Overdue Action Report (Figure 3.6)

This report lists all actions which are overdue based on their scheduled date. Included in the report is the reason for an action being overdue, e.g.,information requested has not yet been received so the action can not be completed or the action card has not been returned (action not accomplished or the card is lost).

For multiple agency use the report is prepared separately by agency. Its principal use would be as a controlling report to:

a. show which sources have not complied with an agency's request for information

b. indicate staff members who are over-scheduled

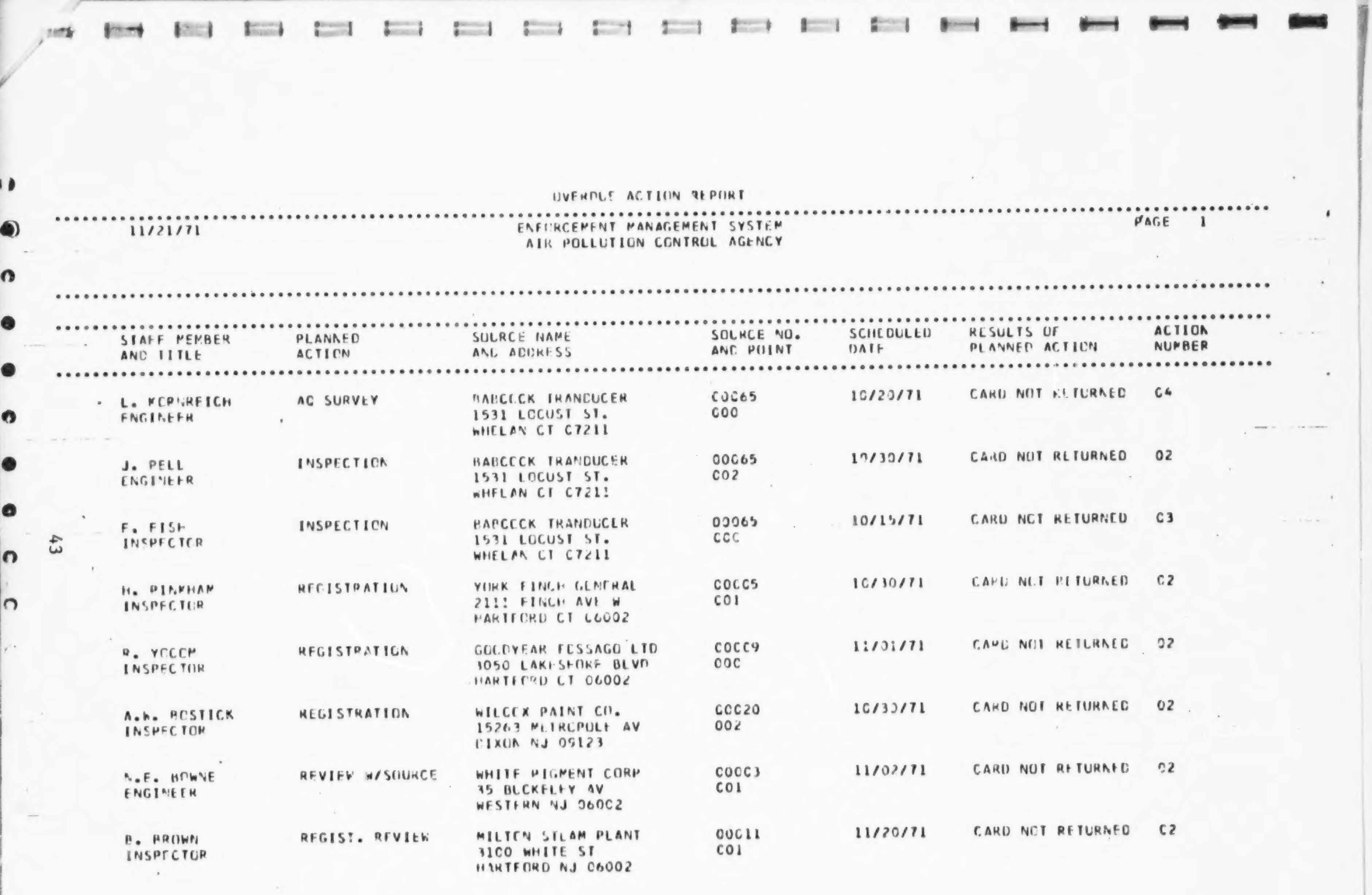
c. prevent an action card from being misplaced

The report is under the control of the data bank coordinator. It should be produced periodically.

Future Schedule Summary (Figures 3.7 and 3.8)

This report lists all actions which are scheduled in the future. The summary is subdivided into section and individual reports.

The section report compiles a summary of projected actions by calendar



```
                                   OVERDUE ACTION REPORT
 ................................................................................................
      11/21/71                          ENFORCEMENT MANAGEMENT SYSTEM                 PAGE    1
                                         AIR POLLUTION CONTROL AGENCY

 ................................................................................................

 ................................................................................................
     STAFF MEMBER      PLANNED           SOURCE NAME            SOURCE NO.   SCHEDULED   RESULTS OF          ACTION
     AND TITLE         ACTION            AND ADDRESS            AND POINT    DATE        PLANNED ACTION      NUMBER
 ................................................................................................

     L. KORNREICH      AG SURVEY         BABCOCK TRANDUCER      00065        10/20/71    CARD NOT RETURNED   04
     ENGINEER                            1531 LOCUST ST.        000
                                         WHELAN CT 07211

     J. PELL           INSPECTION        BABCOCK TRANDUCER      00065        10/30/71    CARD NOT RETURNED   02
     ENGINEER                            1531 LOCUST ST.        002
                                         WHELAN CT 07211

     F. FISH           INSPECTION        BABCOCK TRANDUCER      00065        10/15/71    CARD NOT RETURNED   03
     INSPECTOR                           1531 LOCUST ST.        000
                                         WHELAN CT 07211

     H. PINKHAM        REGISTRATION      YORK FINCH GENERAL     00005        10/30/71    CARD NOT RETURNED   02
     INSPECTOR                           2111 FINCH AVE W       001
                                         HARTFORD CT 06002

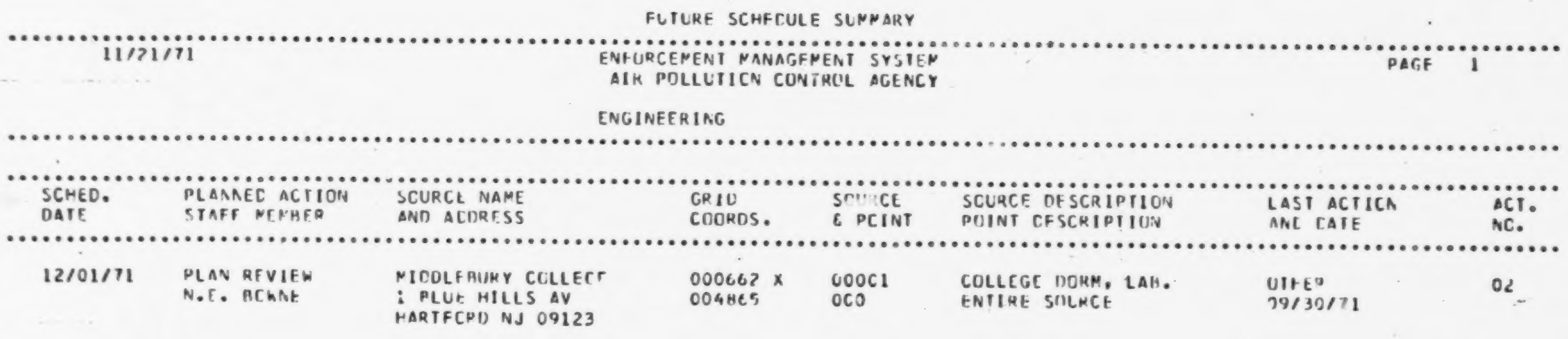
     R. YOCOM          REGISTRATION      GOODYEAR FOSSAGO LTD   00009        11/01/71    CARD NOT RETURNED   02
     INSPECTOR                           3050 LAKESHORE BLVD    000
                                         HARTFORD CT 06002

     A.W. BOSTICK      REGISTRATION      WILCOX PAINT CO.       00020        10/30/71    CARD NOT RETURNED   02
     INSPECTOR                           15263 METROPOLE AV     002
                                         DIXON NJ 09123

     N.E. BOWNE        REVIEW W/SOURCE   WHITE PIGMENT CORP     00003        11/02/71    CARD NOT RETURNED   02
     ENGINEER                            35 BUCKELEY AV         001
                                         WESTERN NJ 06002

     B. BROWN          REGIST. REVIEW    MILTON STEAM PLANT     00011        11/20/71    CARD NOT RETURNED   02
     INSPECTOR                           3100 WHITE ST          001
                                         HARTFORD NJ 06002
```

Figure 3.6. Overdue action report prepared by computerized system.



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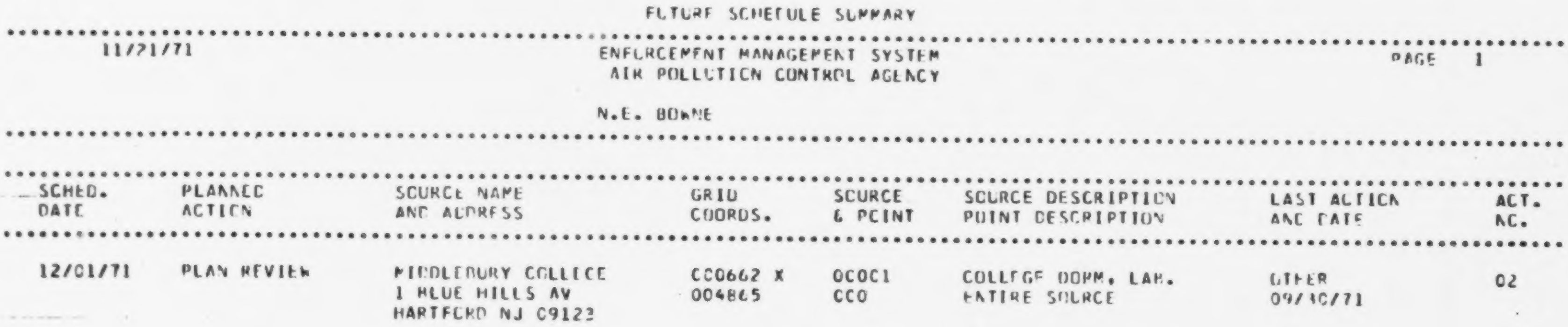
                                         FUTURE SCHEDULE SUMMARY
*************************************************************************************************************
      11/21/71                          ENFORCEMENT MANAGEMENT SYSTEM                              PAGE   1
                                         AIR POLLUTION CONTROL AGENCY

                                        ENGINEERING
*************************************************************************************************************

*************************************************************************************************************
  SCHED.     PLANNED ACTION   SOURCE NAME              GRID       SOURCE    SOURCE DESCRIPTION      LAST ACTION     ACT.
  DATE       STAFF MEMBER     AND ADDRESS              COORDS.    & POINT   POINT DESCRIPTION       AND DATE        NO.
*************************************************************************************************************

  12/01/71   PLAN REVIEW      MIDDLEBURY COLLEGE       000662 X   00001     COLLEGE DORM, LAB.      OTHER           02
             N.E. BOWNE       1 BLUE HILLS AV          004865     000       ENTIRE SOURCE           09/30/71
                              HARTFORD NJ 09123
```

Figure 3.7. Future schedule summary prepared by computerized system.



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                                          FUTURE SCHEDULE SUMMARY
.........................................................................................................
      11/21/71                           ENFORCEMENT MANAGEMENT SYSTEM                          PAGE   1
                                          AIR POLLUTION CONTROL AGENCY

                                         N.E. BOWNE
.........................................................................................................

.........................................................................................................
  SCHED.     PLANNED        SCOURCE NAME           GRID        SOURCE     SOURCE DESCRIPTION     LAST ACTION      ACT.
  DATE       ACTION         AND ADDRESS            COORDS.     & POINT    POINT DESCRIPTION      AND DATE         NO.
.........................................................................................................

  12/01/71   PLAN REVIEW    MIDDLEBURY COLLEGE     000662 X    00001      COLLEGE DORM, LAB.     OTHER            02
                            1 BLUE HILLS AV        004865      000        ENTIRE SOURCE          09/30/71
                            HARTFORD NJ 09123
```

Figure 3.8. Future schedule summary prepared by computerized system.

dates. It contains the source location, emission point, previous action against the source and its date, as well as the projected action and the name of the staff member assigned to complete it.

The individual summary is similar to the section summary, except it only lists actions to be performed by this individual and not the entire section.

The section summary is distributed to agency and/or section management. Its main use is as a tool in the assignment of manpower, and for management review of workloads.

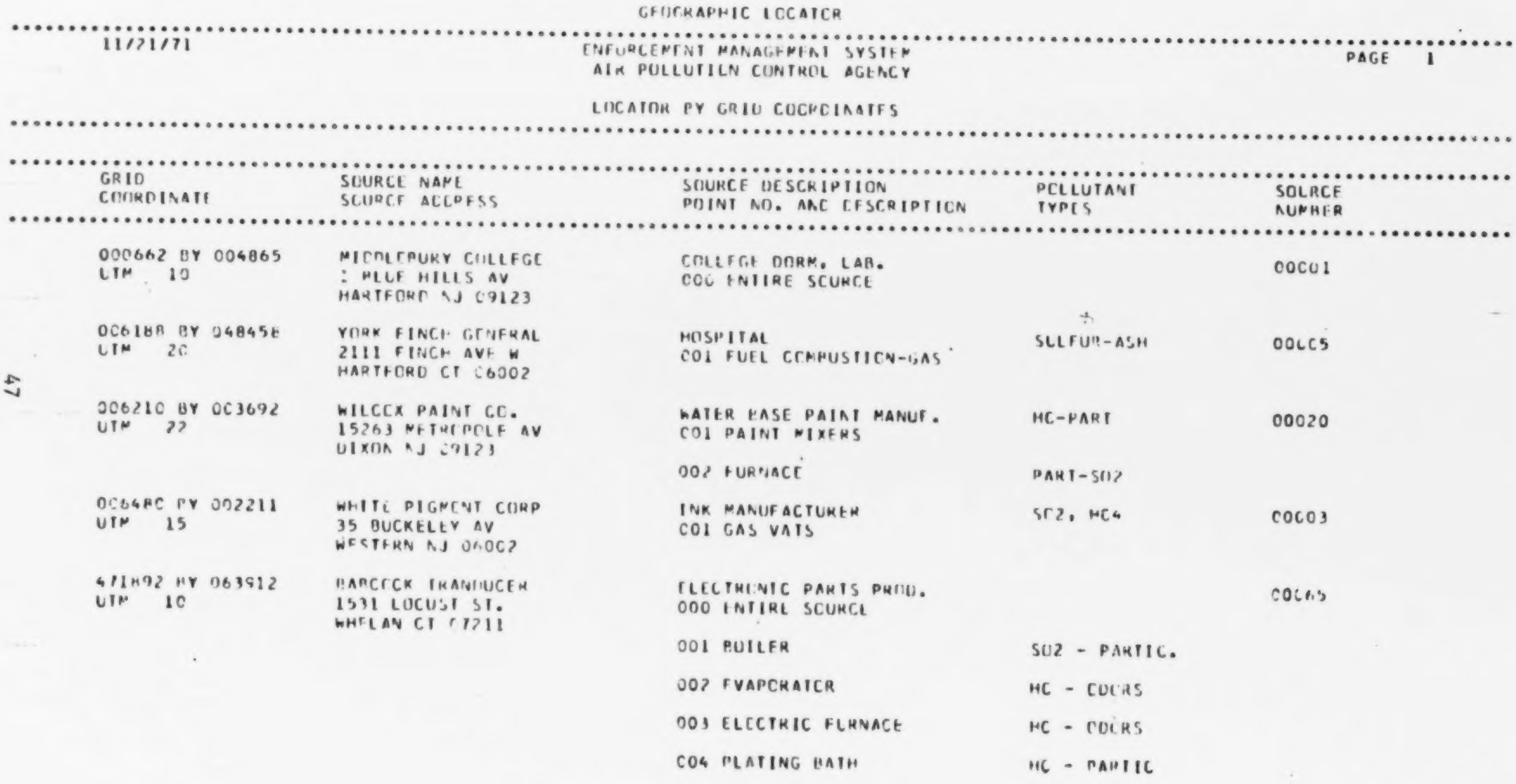
The individual summary accompanies the individual's action cards. It enables a staff member to review his upcoming schedule. He could then rearrange his trips so he would spend more time at a source and less time traveling. The source name and address serves to save valuable time for the staff member by not having to reference any other report to find the source address.

The production of these summaries is under the control of the data bank coordinator. Since this is such a valuable report and since the entries are always changing, it probably would be required each cycle.

Geographic Locator (Figures 3.9 and 3.10)

This is a listing of all sources on the master file. Two reports are produced for each agency utilizing the system. A locator by grid coordinates lists sources by UTM gridding (or any consistent system of coordinates). A second locator lists sources by city and state.

Between these two locators, any complaint can be quickly verified to see if the source is registered. The grid coordinate locator can also be



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                                   GEOGRAPHIC LOCATOR
..........................................................................................
         11/21/71                    ENFORCEMENT MANAGEMENT SYSTEM                    PAGE    1
                                     AIR POLLUTION CONTROL AGENCY

                                     LOCATOR BY GRID COORDINATES
..........................................................................................

..........................................................................................
         GRID                SOURCE NAME             SOURCE DESCRIPTION           POLLUTANT        SOURCE
         COORDINATE          SOURCE ADDRESS          POINT NO. AND DESCRIPTION    TYPES            NUMBER
..........................................................................................

         000662 BY 004865    MIDDLEBURY COLLEGE      COLLEGE DORM, LAB.                            00001
         UTM   10            1 BLUE HILLS AV         000 ENTIRE SOURCE
                             HARTFORD NJ 09123

         006188 BY 048458    YORK FINCH GENERAL      HOSPITAL                     SULFUR-ASH       00005
         UTM   20            2111 FINCH AVE W        001 FUEL COMBUSTION-GAS
                             HARTFORD CT 06002

         006210 BY 003692    WILCOX PAINT CO.        WATER BASE PAINT MANUF.      HC-PART          00020
         UTM   22            15263 METROPOLE AV      001 PAINT MIXERS
                             DIXON NJ 09123
                                                     002 FURNACE                  PART-SO2

         006480 BY 002211    WHITE PIGMENT CORP      INK MANUFACTURER             SO2, HC4         00003
         UTM   15            35 BUCKELEY AV          001 GAS VATS
                             WESTERN NJ 06002

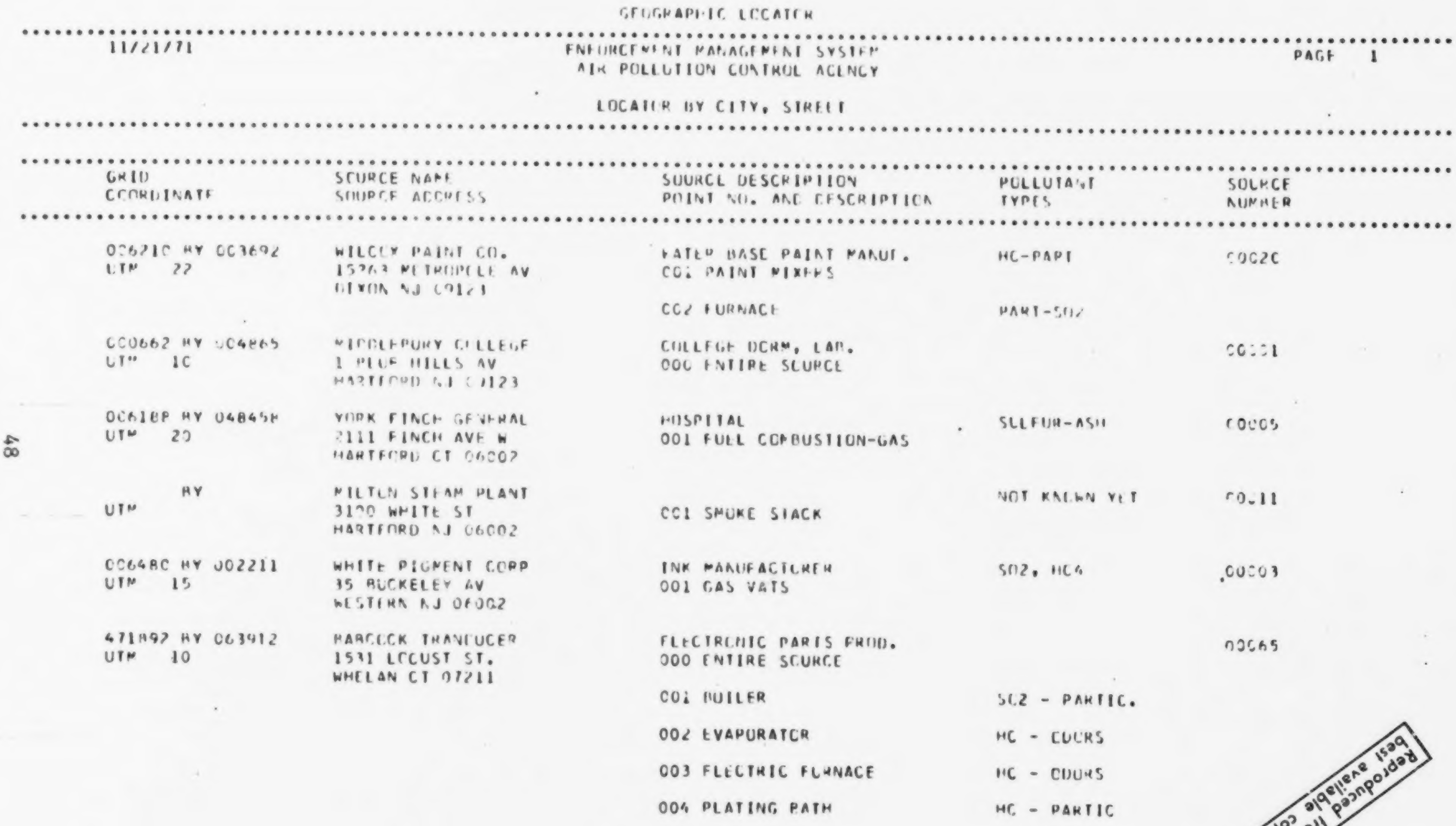
         471892 BY 063912    BABCOCK TRANDUCER       ELECTRONIC PARTS PROD.                        00065
         UTM   10            1531 LOCUST ST.         000 ENTIRE SOURCE
                             WHELAN CT 07211
                                                     001 BOILER                   SO2 - PARTIC.

                                                     002 EVAPORATOR               HC - ODORS

                                                     003 ELECTRIC FURNACE         HC - ODORS

                                                     004 PLATING BATH             HC - PARTIC
```

Figure 3.9. Geographic locator prepared by computerized system.



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                                         GEOGRAPHIC LOCATOR
..........................................................................................................
   11/21/71                         ENFORCEMENT MANAGEMENT SYSTEM                                PAGE   1
                                     AIR POLLUTION CONTROL AGENCY

                                       LOCATOR BY CITY, STREET
..........................................................................................................

..........................................................................................................
   GRID                 SOURCE NAME              SOURCE DESCRIPTION           POLLUTANT        SOURCE
   COORDINATE           SOURCE ADDRESS           POINT NO. AND DESCRIPTION    TYPES            NUMBER
..........................................................................................................

   026210 BY 003692     WILCOX PAINT CO.         WATER BASE PAINT MANUF.      HC-PART          00020
   UTM   22             15263 METROPOLE AV       001 PAINT MIXERS
                        DIXON NJ 09121
                                                 002 FURNACE                  PART-SO2

   000662 BY 004865     MIDDLEBURY COLLEGE       COLLEGE DORM, LAB.                            00001
   UTM   10             1 BLUE HILLS AV          000 ENTIRE SOURCE
                        HARTFORD NJ 07123

   006180 BY 048458     YORK FINCH GENERAL       HOSPITAL                     SULFUR-ASH       00005
   UTM   20             2111 FINCH AVE W         001 FUEL COMBUSTION-GAS
                        HARTFORD CT 06002

             BY         MILTON STEAM PLANT                                    NOT KNOWN YET    00011
   UTM                  3100 WHITE ST            001 SMOKE STACK
                        HARTFORD NJ 06002

   006480 BY 002211     WHITE PIGMENT CORP       INK MANUFACTURER             SO2, HC4         00003
   UTM   15             35 BUCKELEY AV           001 GAS VATS
                        WESTERN NJ 06002

   471892 BY 063912     BABCOCK TRANDUCER        ELECTRONIC PARTS PROD.                        00065
   UTM   10             1531 LOCUST ST.          000 ENTIRE SOURCE
                        WHELAN CT 07211
                                                 001 BOILER                   SO2 - PARTIC.

                                                 002 EVAPORATOR               HC - ODORS

                                                 003 ELECTRIC FURNACE         HC - ODORS

                                                 004 PLATING BATH             HC - PARTIC
```

Reproduced from best available copy.

Figure 3.10. Geographic locator prepared by computerized system.

used to determine pollutant sources in a particular area which may be causing air quality problems.

This report is under the direct control of the data bank coordinator. Once the master file is created, there will be relatively few new sources added, therefore these reports could be produced every 4 or 5 cycles.

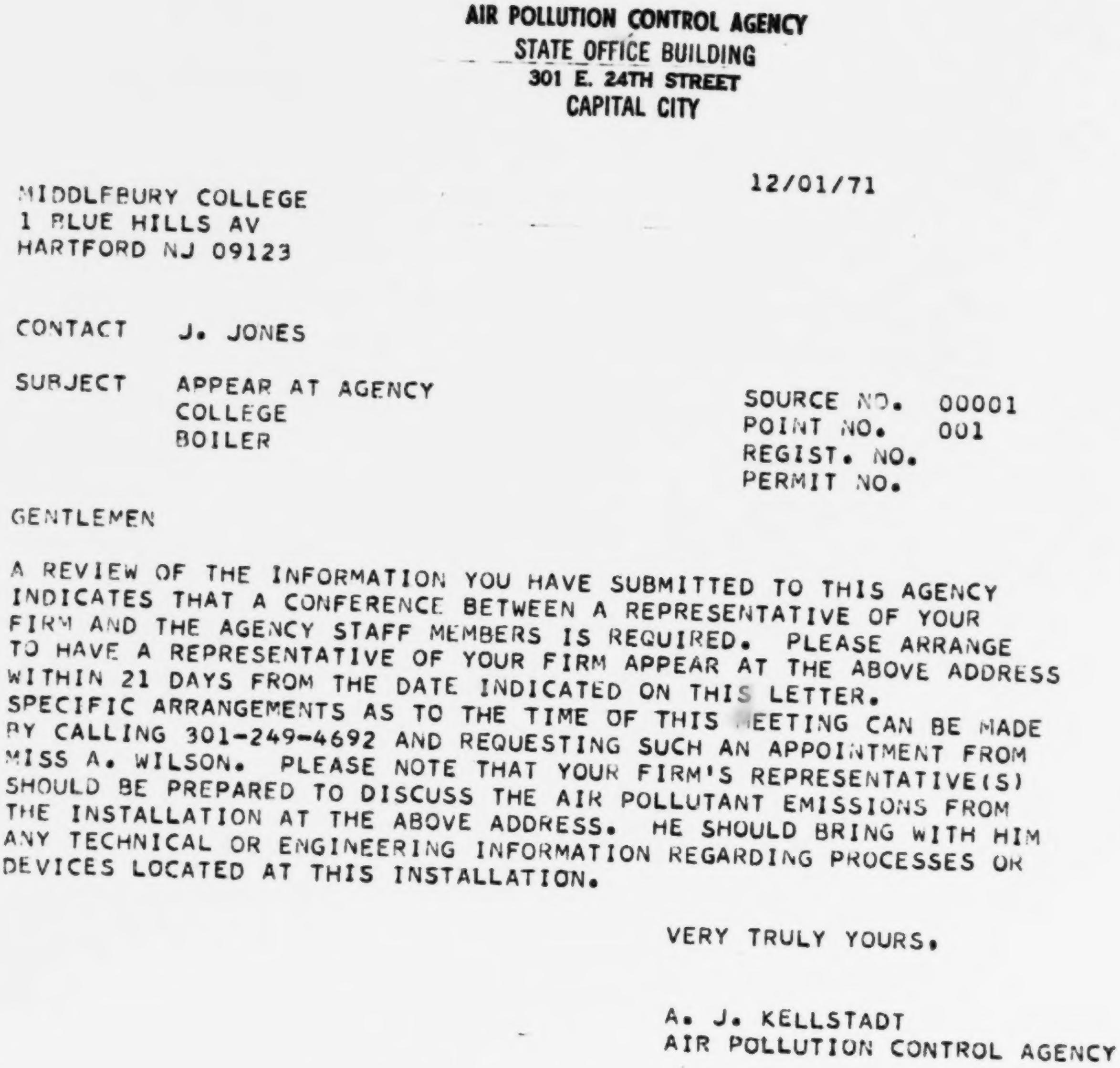
Standardized Agency Letters, Certificates (Figure 3.11 through Figure 3.18)

The system produces standardized letters and other documents for transmittal to sources. The text is under control of the local agency, and will reflect local practice and regulations. The method used to introduce particular textual material is described in the Appendix.

The letters are produced when an action card (either mechanized or special) is submitted to the system with a "Send Letter" number circled. The system responds by printing the letter with the source name and address, contact, and other data at the top, and the standarized text as the body. A number of examples are shown in the following figures.

The letters may be printed on agency letterhead bond, by ordering this paper with specifications appropriate to the computer printer used at the local center. Alternately, blank stock may be utilized and an agency stamp used, to reduce costs.

In some cases, local situations may dictate that only the letter title, plus source name and address be printed. For example, some local computer centers may not accept the use of preprinted forms, such as letterhead stock forms. In this case, the letters must be prepared "off-line", away from the computer. This can be done in several ways. The standard letters can be multilithed, and the variable data typed in from the computer printout.



AIR POLLUTION CONTROL AGENCY
STATE OFFICE BUILDING
301 E. 24TH STREET
CAPITAL CITY

12/01/71

MIDDLEBURY COLLEGE
1 BLUE HILLS AV
HARTFORD NJ 09123

CONTACT J. JONES

SUBJECT APPEAR AT AGENCY
COLLEGE
BOILER

SOURCE NO. 00001
POINT NO. 001
REGIST. NO.
PERMIT NO.

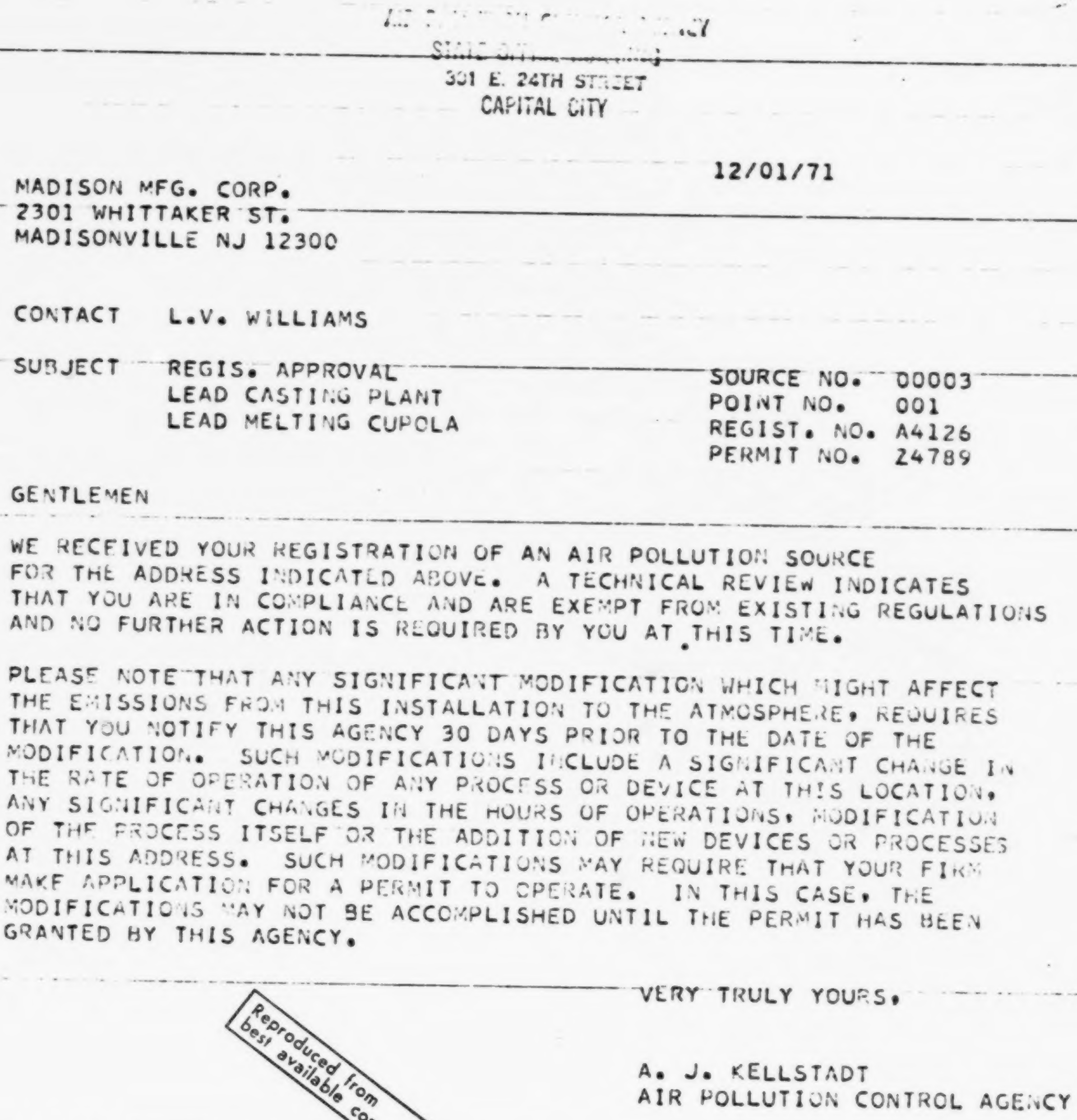
GENTLEMEN

A REVIEW OF THE INFORMATION YOU HAVE SUBMITTED TO THIS AGENCY INDICATES THAT A CONFERENCE BETWEEN A REPRESENTATIVE OF YOUR FIRM AND THE AGENCY STAFF MEMBERS IS REQUIRED. PLEASE ARRANGE TO HAVE A REPRESENTATIVE OF YOUR FIRM APPEAR AT THE ABOVE ADDRESS WITHIN 21 DAYS FROM THE DATE INDICATED ON THIS LETTER. SPECIFIC ARRANGEMENTS AS TO THE TIME OF THIS MEETING CAN BE MADE BY CALLING 301-249-4692 AND REQUESTING SUCH AN APPOINTMENT FROM MISS A. WILSON. PLEASE NOTE THAT YOUR FIRM'S REPRESENTATIVE(S) SHOULD BE PREPARED TO DISCUSS THE AIR POLLUTANT EMISSIONS FROM THE INSTALLATION AT THE ABOVE ADDRESS. HE SHOULD BRING WITH HIM ANY TECHNICAL OR ENGINEERING INFORMATION REGARDING PROCESSES OR DEVICES LOCATED AT THIS INSTALLATION.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.11. Sample letter produced by system for mailing to source.



[illegible]
STATE [illegible]
301 E. 24TH STREET
CAPITAL CITY

12/01/71

MADISON MFG. CORP.
2301 WHITTAKER ST.
MADISONVILLE NJ 12300

CONTACT L.V. WILLIAMS

SUBJECT REGIS. APPROVAL
LEAD CASTING PLANT
LEAD MELTING CUPOLA

SOURCE NO. 00003
POINT NO. 001
REGIST. NO. A4126
PERMIT NO. 24789

GENTLEMEN

WE RECEIVED YOUR REGISTRATION OF AN AIR POLLUTION SOURCE FOR THE ADDRESS INDICATED ABOVE. A TECHNICAL REVIEW INDICATES THAT YOU ARE IN COMPLIANCE AND ARE EXEMPT FROM EXISTING REGULATIONS AND NO FURTHER ACTION IS REQUIRED BY YOU AT THIS TIME.

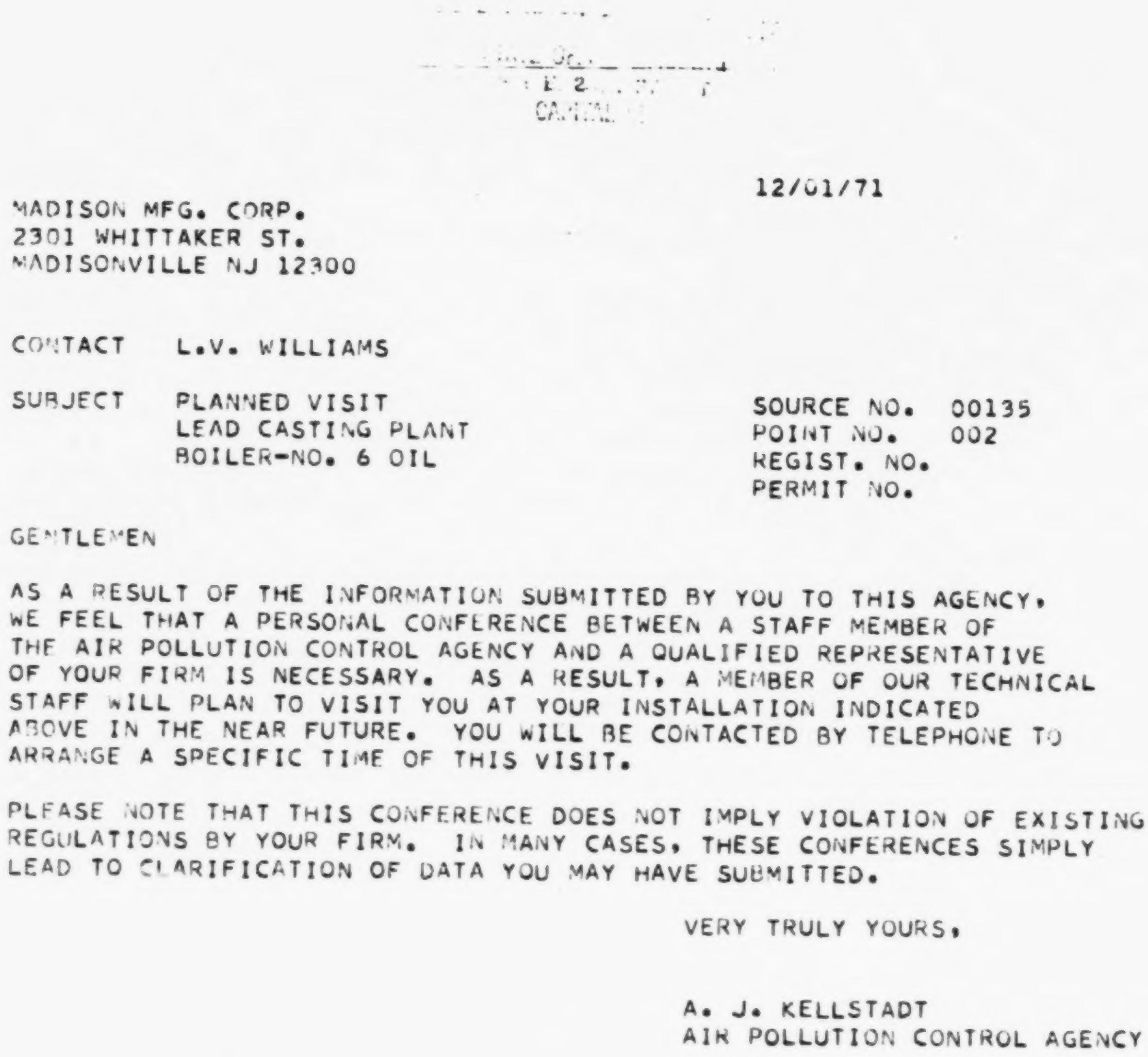
PLEASE NOTE THAT ANY SIGNIFICANT MODIFICATION WHICH MIGHT AFFECT THE EMISSIONS FROM THIS INSTALLATION TO THE ATMOSPHERE, REQUIRES THAT YOU NOTIFY THIS AGENCY 30 DAYS PRIOR TO THE DATE OF THE MODIFICATION. SUCH MODIFICATIONS INCLUDE A SIGNIFICANT CHANGE IN THE RATE OF OPERATION OF ANY PROCESS OR DEVICE AT THIS LOCATION, ANY SIGNIFICANT CHANGES IN THE HOURS OF OPERATIONS, MODIFICATION OF THE PROCESS ITSELF OR THE ADDITION OF NEW DEVICES OR PROCESSES AT THIS ADDRESS. SUCH MODIFICATIONS MAY REQUIRE THAT YOUR FIRM MAKE APPLICATION FOR A PERMIT TO OPERATE. IN THIS CASE, THE MODIFICATIONS MAY NOT BE ACCOMPLISHED UNTIL THE PERMIT HAS BEEN GRANTED BY THIS AGENCY.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Reproduced from best available copy.

Figure 3.12. Sample letter produced by system for mailing to source.



12/01/71

MADISON MFG. CORP.
2301 WHITTAKER ST.
MADISONVILLE NJ 12300

CONTACT L.V. WILLIAMS

SUBJECT PLANNED VISIT
LEAD CASTING PLANT
BOILER-NO. 6 OIL

SOURCE NO. 00135
POINT NO. 002
REGIST. NO.
PERMIT NO.

GENTLEMEN

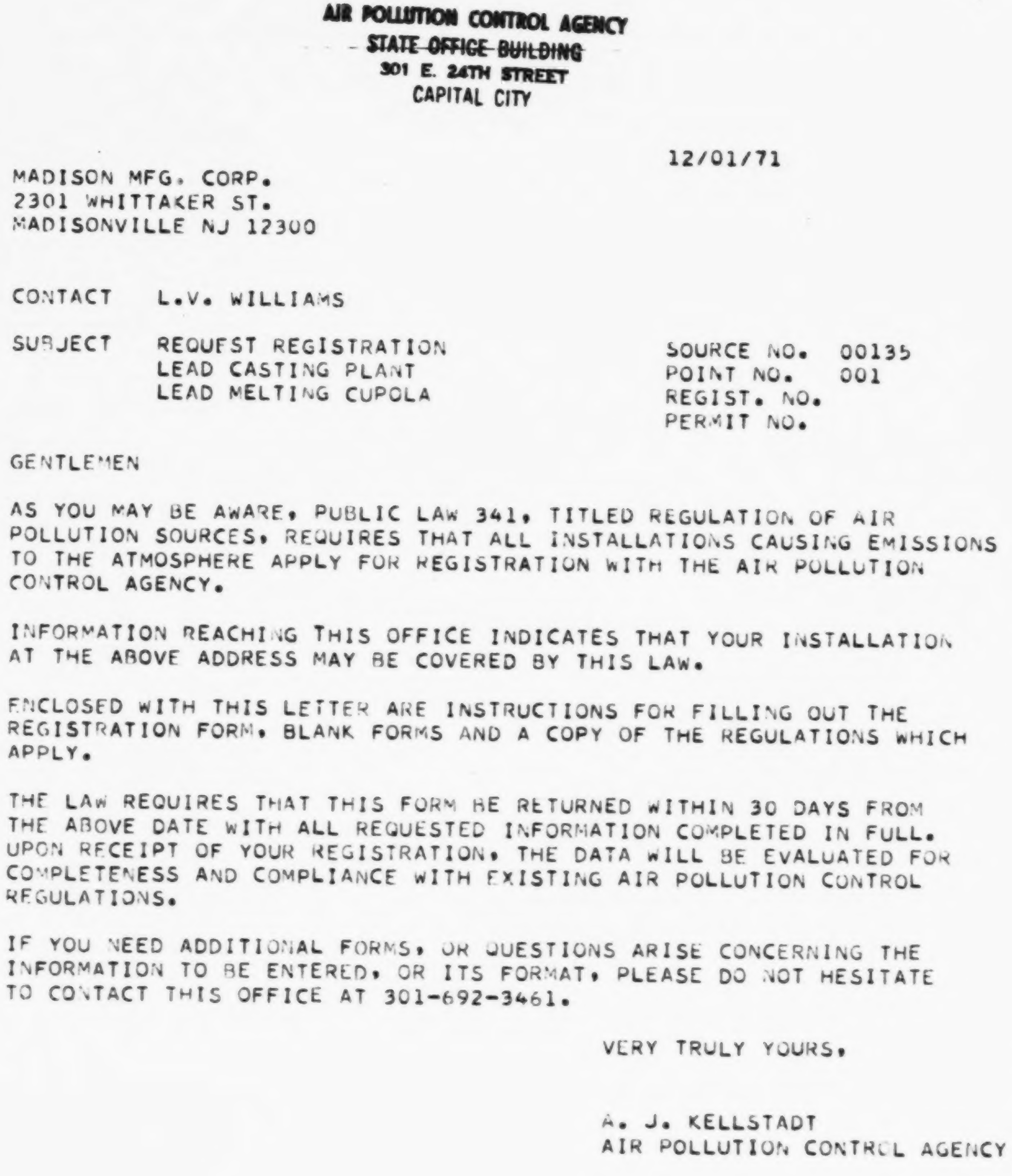
AS A RESULT OF THE INFORMATION SUBMITTED BY YOU TO THIS AGENCY, WE FEEL THAT A PERSONAL CONFERENCE BETWEEN A STAFF MEMBER OF THE AIR POLLUTION CONTROL AGENCY AND A QUALIFIED REPRESENTATIVE OF YOUR FIRM IS NECESSARY. AS A RESULT, A MEMBER OF OUR TECHNICAL STAFF WILL PLAN TO VISIT YOU AT YOUR INSTALLATION INDICATED ABOVE IN THE NEAR FUTURE. YOU WILL BE CONTACTED BY TELEPHONE TO ARRANGE A SPECIFIC TIME OF THIS VISIT.

PLEASE NOTE THAT THIS CONFERENCE DOES NOT IMPLY VIOLATION OF EXISTING REGULATIONS BY YOUR FIRM. IN MANY CASES, THESE CONFERENCES SIMPLY LEAD TO CLARIFICATION OF DATA YOU MAY HAVE SUBMITTED.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.13. Sample letter produced by system for mailing to source.



AIR POLLUTION CONTROL AGENCY
~~STATE OFFICE BUILDING~~
301 E. 24TH STREET
CAPITAL CITY

12/01/71

MADISON MFG. CORP.
2301 WHITTAKER ST.
MADISONVILLE NJ 12300

CONTACT L.V. WILLIAMS

SUBJECT	REQUEST REGISTRATION LEAD CASTING PLANT LEAD MELTING CUPOLA	SOURCE NO. POINT NO. REGIST. NO. PERMIT NO.	00135 001

GENTLEMEN

AS YOU MAY BE AWARE, PUBLIC LAW 341, TITLED REGULATION OF AIR POLLUTION SOURCES, REQUIRES THAT ALL INSTALLATIONS CAUSING EMISSIONS TO THE ATMOSPHERE APPLY FOR REGISTRATION WITH THE AIR POLLUTION CONTROL AGENCY.

INFORMATION REACHING THIS OFFICE INDICATES THAT YOUR INSTALLATION AT THE ABOVE ADDRESS MAY BE COVERED BY THIS LAW.

ENCLOSED WITH THIS LETTER ARE INSTRUCTIONS FOR FILLING OUT THE REGISTRATION FORM, BLANK FORMS AND A COPY OF THE REGULATIONS WHICH APPLY.

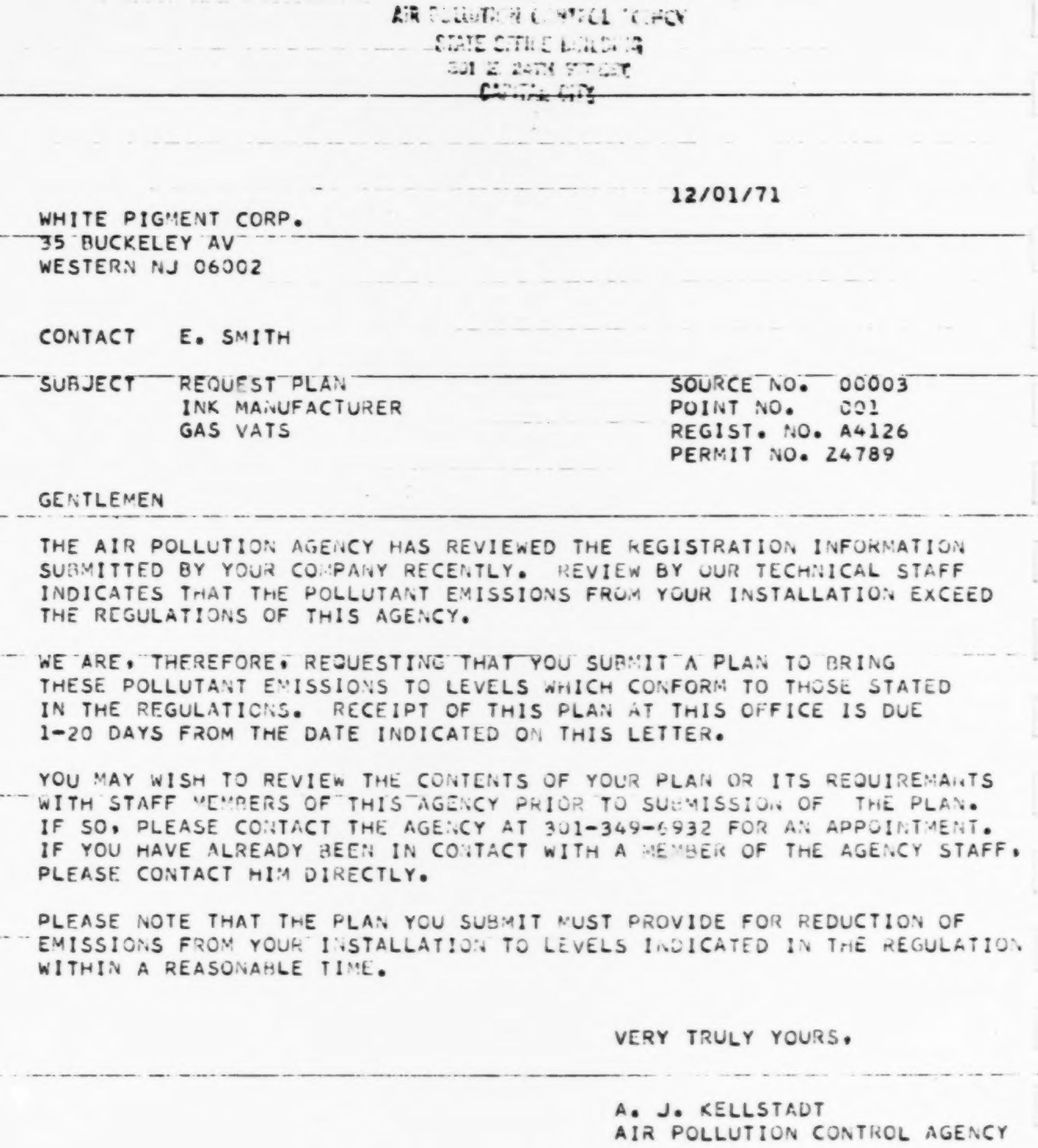
THE LAW REQUIRES THAT THIS FORM BE RETURNED WITHIN 30 DAYS FROM THE ABOVE DATE WITH ALL REQUESTED INFORMATION COMPLETED IN FULL. UPON RECEIPT OF YOUR REGISTRATION, THE DATA WILL BE EVALUATED FOR COMPLETENESS AND COMPLIANCE WITH EXISTING AIR POLLUTION CONTROL REGULATIONS.

IF YOU NEED ADDITIONAL FORMS, OR QUESTIONS ARISE CONCERNING THE INFORMATION TO BE ENTERED, OR ITS FORMAT, PLEASE DO NOT HESITATE TO CONTACT THIS OFFICE AT 301-692-3461.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.14. Sample letter produced by system for mailing to source.



AIR POLLUTION CONTROL AGENCY
STATE OFFICE BUILDING
301 E. 24TH STREET
CAPITAL CITY

12/01/71

WHITE PIGMENT CORP.
35 BUCKELEY AV
WESTERN NJ 06002

CONTACT E. SMITH

SUBJECT REQUEST PLAN
INK MANUFACTURER
GAS VATS

SOURCE NO. 00003
POINT NO. 001
REGIST. NO. A4126
PERMIT NO. Z4789

GENTLEMEN

THE AIR POLLUTION AGENCY HAS REVIEWED THE REGISTRATION INFORMATION SUBMITTED BY YOUR COMPANY RECENTLY. REVIEW BY OUR TECHNICAL STAFF INDICATES THAT THE POLLUTANT EMISSIONS FROM YOUR INSTALLATION EXCEED THE REGULATIONS OF THIS AGENCY.

WE ARE, THEREFORE, REQUESTING THAT YOU SUBMIT A PLAN TO BRING THESE POLLUTANT EMISSIONS TO LEVELS WHICH CONFORM TO THOSE STATED IN THE REGULATIONS. RECEIPT OF THIS PLAN AT THIS OFFICE IS DUE 1-20 DAYS FROM THE DATE INDICATED ON THIS LETTER.

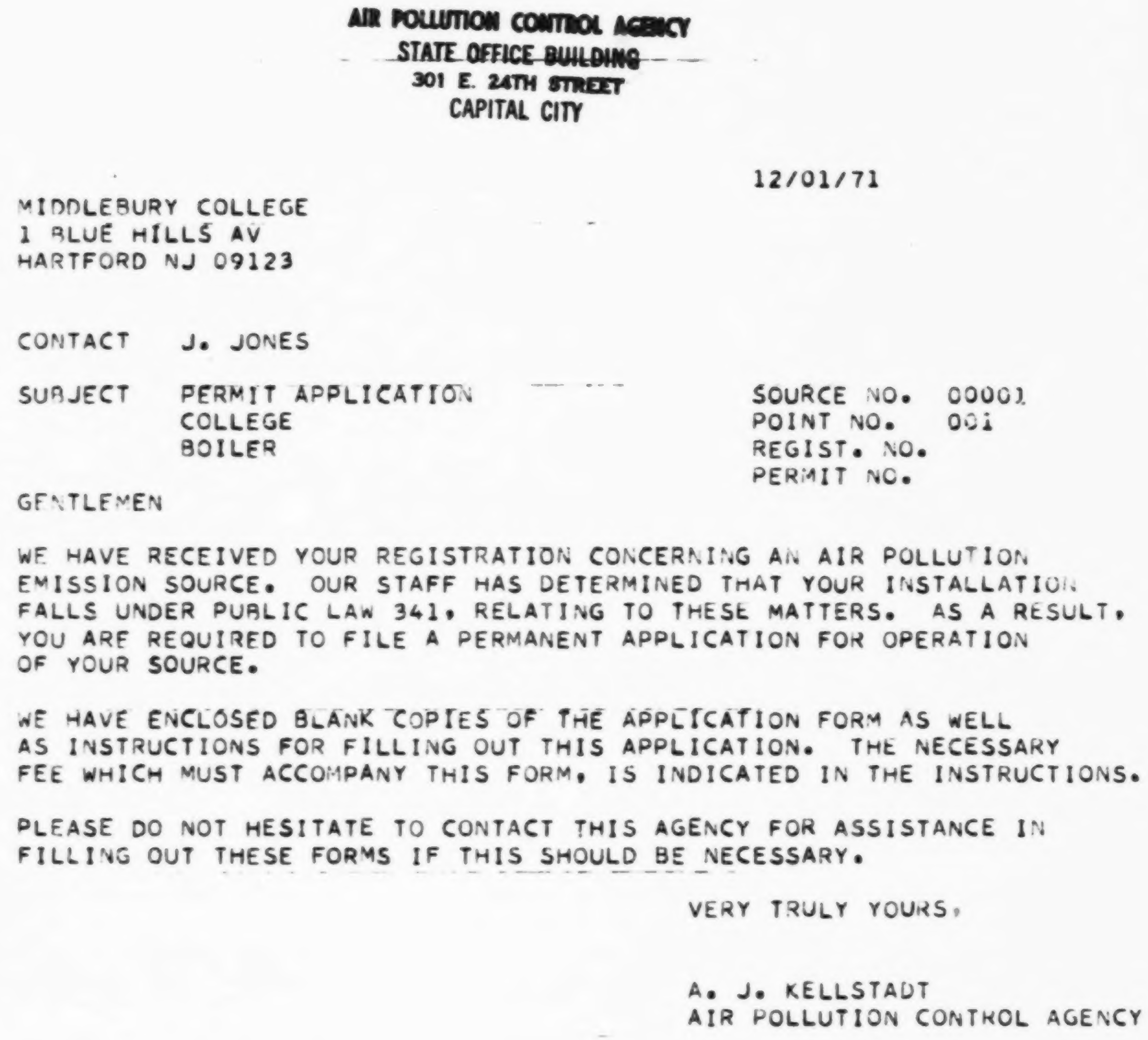
YOU MAY WISH TO REVIEW THE CONTENTS OF YOUR PLAN OR ITS REQUIREMANTS WITH STAFF MEMBERS OF THIS AGENCY PRIOR TO SUBMISSION OF THE PLAN. IF SO, PLEASE CONTACT THE AGENCY AT 301-349-6932 FOR AN APPOINTMENT. IF YOU HAVE ALREADY BEEN IN CONTACT WITH A MEMBER OF THE AGENCY STAFF, PLEASE CONTACT HIM DIRECTLY.

PLEASE NOTE THAT THE PLAN YOU SUBMIT MUST PROVIDE FOR REDUCTION OF EMISSIONS FROM YOUR INSTALLATION TO LEVELS INDICATED IN THE REGULATION WITHIN A REASONABLE TIME.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.15. Sample letter produced by system for mailing to source.



AIR POLLUTION CONTROL AGENCY
STATE OFFICE BUILDING
301 E. 24TH STREET
CAPITAL CITY

12/01/71

MIDDLEBURY COLLEGE
1 BLUE HILLS AV
HARTFORD NJ 09123

CONTACT J. JONES

SUBJECT PERMIT APPLICATION
COLLEGE
BOILER

SOURCE NO. 00001
POINT NO. 001
REGIST. NO.
PERMIT NO.

GENTLEMEN

WE HAVE RECEIVED YOUR REGISTRATION CONCERNING AN AIR POLLUTION EMISSION SOURCE. OUR STAFF HAS DETERMINED THAT YOUR INSTALLATION FALLS UNDER PUBLIC LAW 341, RELATING TO THESE MATTERS. AS A RESULT, YOU ARE REQUIRED TO FILE A PERMANENT APPLICATION FOR OPERATION OF YOUR SOURCE.

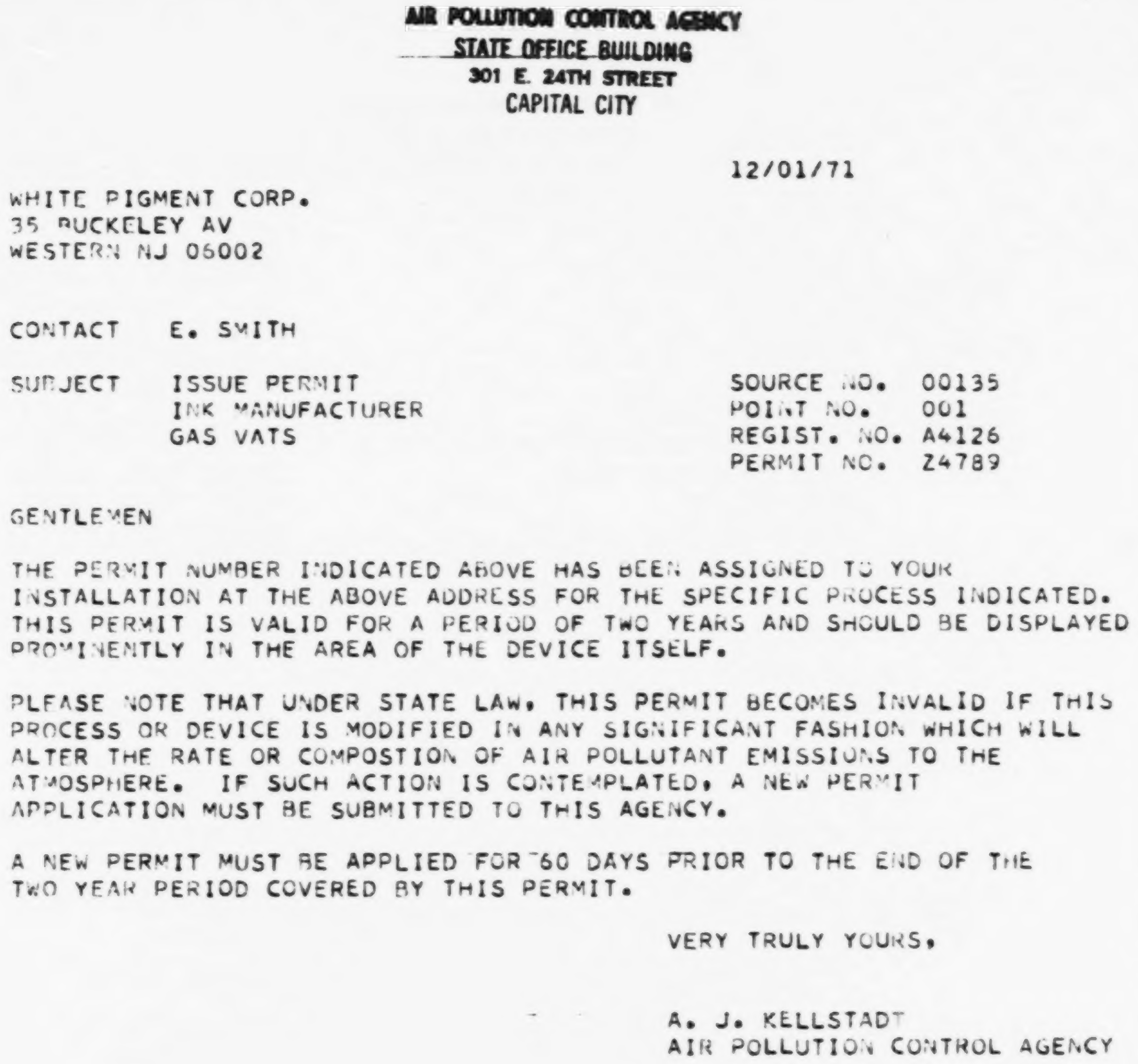
WE HAVE ENCLOSED BLANK COPIES OF THE APPLICATION FORM AS WELL AS INSTRUCTIONS FOR FILLING OUT THIS APPLICATION. THE NECESSARY FEE WHICH MUST ACCOMPANY THIS FORM, IS INDICATED IN THE INSTRUCTIONS.

PLEASE DO NOT HESITATE TO CONTACT THIS AGENCY FOR ASSISTANCE IN FILLING OUT THESE FORMS IF THIS SHOULD BE NECESSARY.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.16. Sample letter produced by system for mailing to source.



AIR POLLUTION CONTROL AGENCY
STATE OFFICE BUILDING
301 E. 24TH STREET
CAPITAL CITY

12/01/71

WHITE PIGMENT CORP.
35 BUCKELEY AV
WESTERN NJ 06002

CONTACT E. SMITH

SUBJECT	ISSUE PERMIT	SOURCE NO.	00135
	INK MANUFACTURER	POINT NO.	001
	GAS VATS	REGIST. NO.	A4126
		PERMIT NO.	Z4789

GENTLEMEN

THE PERMIT NUMBER INDICATED ABOVE HAS BEEN ASSIGNED TO YOUR INSTALLATION AT THE ABOVE ADDRESS FOR THE SPECIFIC PROCESS INDICATED. THIS PERMIT IS VALID FOR A PERIOD OF TWO YEARS AND SHOULD BE DISPLAYED PROMINENTLY IN THE AREA OF THE DEVICE ITSELF.

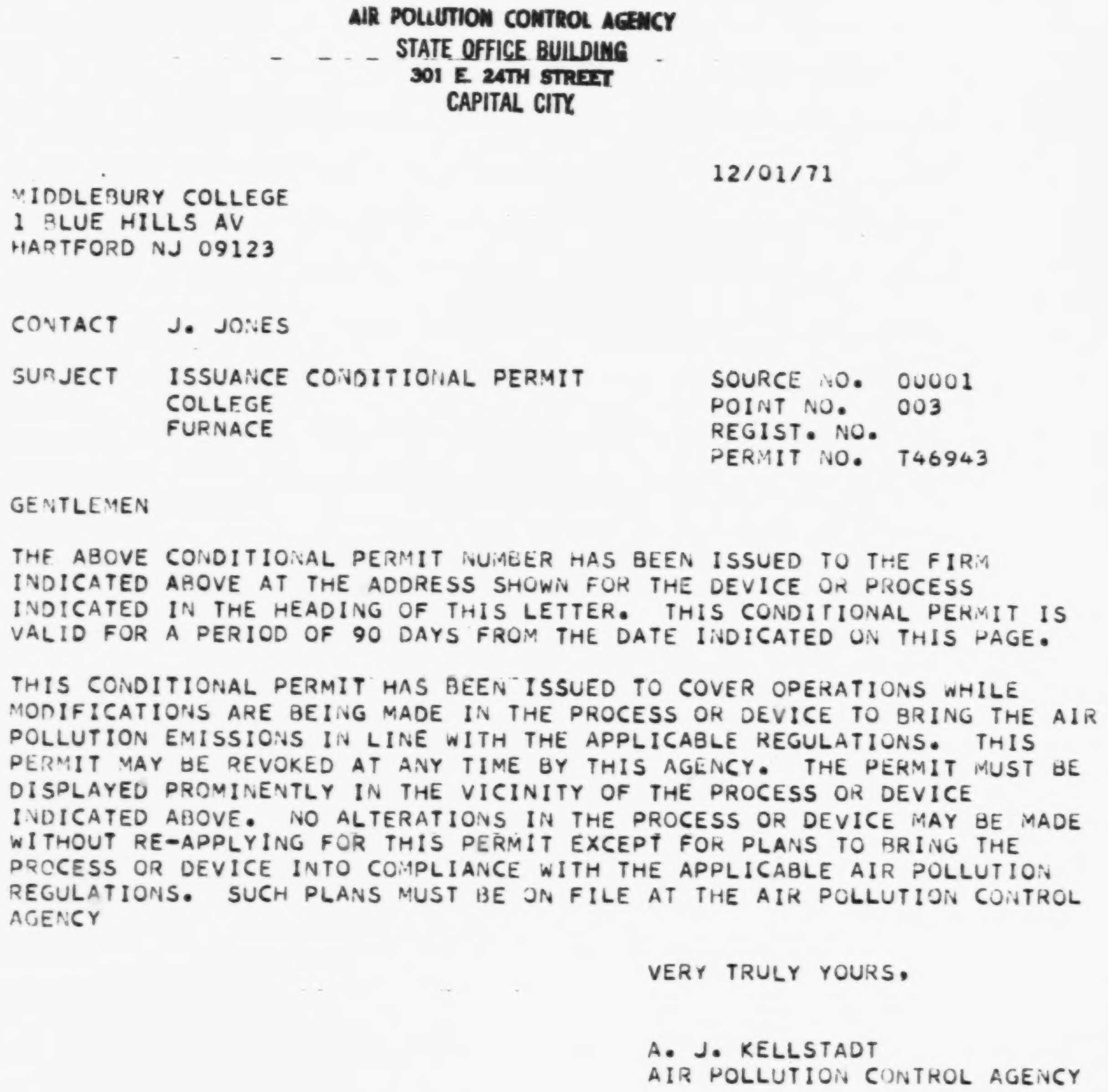
PLEASE NOTE THAT UNDER STATE LAW, THIS PERMIT BECOMES INVALID IF THIS PROCESS OR DEVICE IS MODIFIED IN ANY SIGNIFICANT FASHION WHICH WILL ALTER THE RATE OR COMPOSTION OF AIR POLLUTANT EMISSIONS TO THE ATMOSPHERE. IF SUCH ACTION IS CONTEMPLATED, A NEW PERMIT APPLICATION MUST BE SUBMITTED TO THIS AGENCY.

A NEW PERMIT MUST BE APPLIED FOR 60 DAYS PRIOR TO THE END OF THE TWO YEAR PERIOD COVERED BY THIS PERMIT.

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.17. Sample letter produced by system for mailing to source.



AIR POLLUTION CONTROL AGENCY
STATE OFFICE BUILDING
301 E. 24TH STREET
CAPITAL CITY

12/01/71

MIDDLEBURY COLLEGE
1 BLUE HILLS AV
HARTFORD NJ 09123

CONTACT J. JONES

SUBJECT ISSUANCE CONDITIONAL PERMIT
COLLEGE
FURNACE

SOURCE NO. 00001
POINT NO. 003
REGIST. NO.
PERMIT NO. T46943

GENTLEMEN

THE ABOVE CONDITIONAL PERMIT NUMBER HAS BEEN ISSUED TO THE FIRM INDICATED ABOVE AT THE ADDRESS SHOWN FOR THE DEVICE OR PROCESS INDICATED IN THE HEADING OF THIS LETTER. THIS CONDITIONAL PERMIT IS VALID FOR A PERIOD OF 90 DAYS FROM THE DATE INDICATED ON THIS PAGE.

THIS CONDITIONAL PERMIT HAS BEEN ISSUED TO COVER OPERATIONS WHILE MODIFICATIONS ARE BEING MADE IN THE PROCESS OR DEVICE TO BRING THE AIR POLLUTION EMISSIONS IN LINE WITH THE APPLICABLE REGULATIONS. THIS PERMIT MAY BE REVOKED AT ANY TIME BY THIS AGENCY. THE PERMIT MUST BE DISPLAYED PROMINENTLY IN THE VICINITY OF THE PROCESS OR DEVICE INDICATED ABOVE. NO ALTERATIONS IN THE PROCESS OR DEVICE MAY BE MADE WITHOUT RE-APPLYING FOR THIS PERMIT EXCEPT FOR PLANS TO BRING THE PROCESS OR DEVICE INTO COMPLIANCE WITH THE APPLICABLE AIR POLLUTION REGULATIONS. SUCH PLANS MUST BE ON FILE AT THE AIR POLLUTION CONTROL AGENCY

VERY TRULY YOURS,

A. J. KELLSTADT
AIR POLLUTION CONTROL AGENCY

Figure 3.18. Sample letter produced by system for mailing to source.

Another method is to store the standard texts in a device using paper or magnetic tape as a storage medium and add the name and address through a keyboard. This alternate is reasonable only if the device is already available, or can be justified by other applications. Some machines which could be used for this purpose are the IBM MT/ST, the Friden Flexowriter (Model 2303I), and the Auto-Typist (Model 75).

Cost comparisions of the various methods will depend on local factors. Costs of the separate machines run from $150 to $275 per month. Cost to prepare the letters on the computer will vary, particularly depending on whether the entire computer configuration is tied up while the letters are printed.

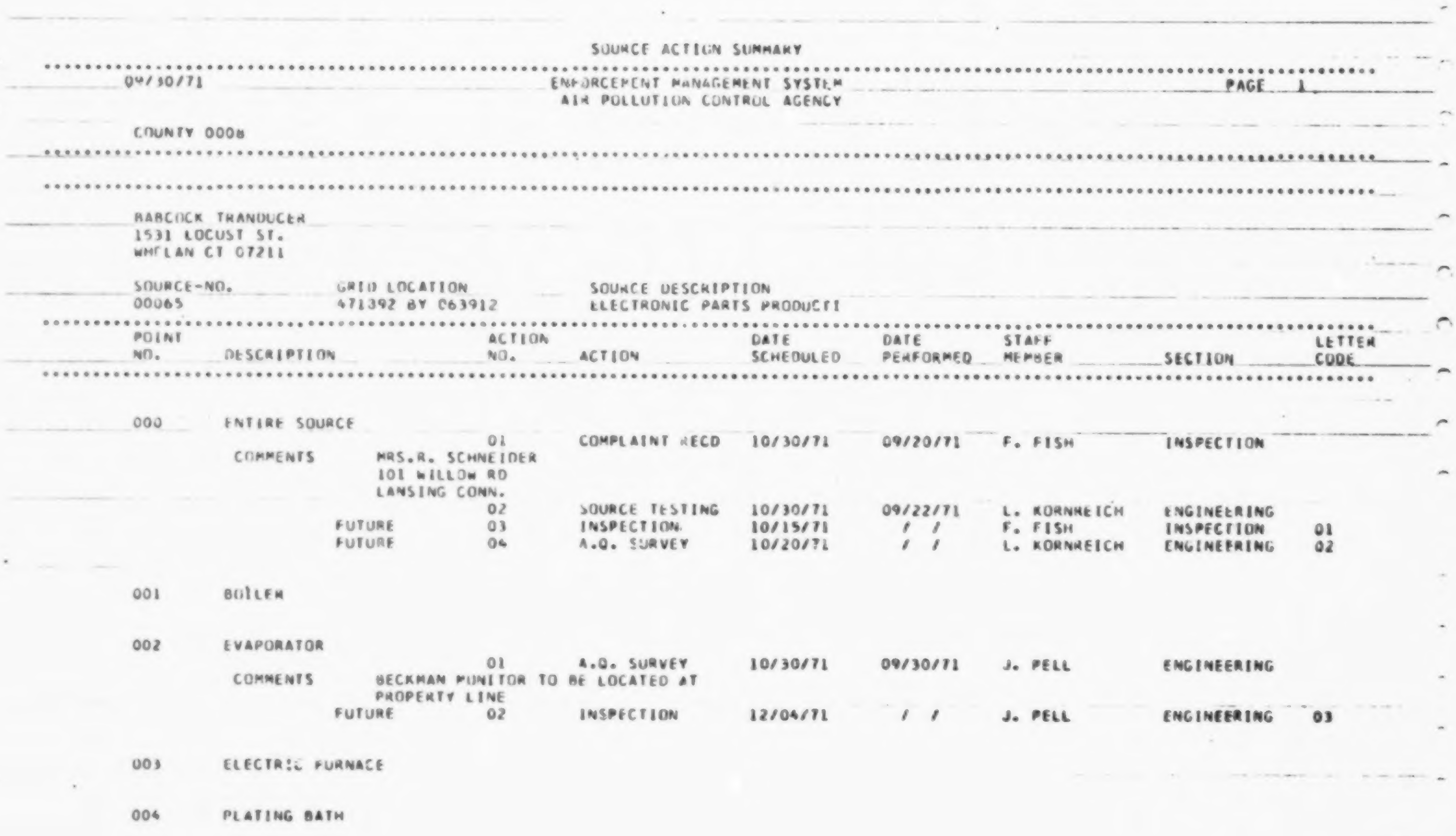
Source Action Summary (Figure 3.19)

The source action summary lists all actions that have been recorded for a particular source. The actions are listed by emission point, to show the current status of enforcement activities with respect to a particular emission point.

Included on the report are actions that have been scheduled for dates in the future. These actions are flagged with the word "future" in the report.

For each action that is shown, the system prints a variety of other related data. The action type, date scheduled, date performed, staff member performing the action, and the agency section are printed adjacent to the action number.

This report must be current at all times, in order for the staff members



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                                   SOURCE ACTION SUMMARY
*******************************************************************************************
        09/30/71                       ENFORCEMENT MANAGEMENT SYSTEM                    PAGE  1
                                        AIR POLLUTION CONTROL AGENCY

        COUNTY 0008
*******************************************************************************************

*******************************************************************************************

        BABCOCK TRANDUCER
        1531 LOCUST ST.
        WHELAN CT 07211

        SOURCE-NO.       GRID LOCATION        SOURCE DESCRIPTION
        00065            471392 BY 063912     ELECTRONIC PARTS PRODUCTI
*******************************************************************************************
        POINT                       ACTION                     DATE       DATE       STAFF                          LETTER
        NO.     DESCRIPTION         NO.     ACTION             SCHEDULED  PERFORMED  MEMBER          SECTION        CODE
*******************************************************************************************

        000     ENTIRE SOURCE
                                    01      COMPLAINT RECD     10/30/71   09/20/71   F. FISH         INSPECTION
                 COMMENTS    MRS.R. SCHNEIDER
                             101 WILLOW RD
                             LANSING CONN.
                                    02      SOURCE TESTING     10/30/71   09/22/71   L. KORNREICH    ENGINEERING
                         FUTURE     03      INSPECTION         10/15/71     /  /     F. FISH         INSPECTION     01
                         FUTURE     04      A.Q. SURVEY        10/20/71     /  /     L. KORNREICH    ENGINEERING    02

        001     BOILER

        002     EVAPORATOR
                                    01      A.Q. SURVEY        10/30/71   09/30/71   J. PELL         ENGINEERING
                 COMMENTS    BECKMAN MONITOR TO BE LOCATED AT
                             PROPERTY LINE
                         FUTURE     02      INSPECTION         12/04/71     /  /     J. PELL         ENGINEERING    03

        003     ELECTRIC FURNACE

        004     PLATING BATH
```

Figure 3.19. Source action summary prepared by computerized system.

using the system to be aware of the current enforcement status of individual sources. For this reason, we recommend that this report be produced each time the system is run.

Action Summary Report (Figure 3.20)

This report is a management summary report, designed for line supervisions. It lists all the actions which have been performed by staff members during a specified period of time. The time period can be varied (see Appendix) to suit immediate agency needs, or to conform with federal reporting periods.

The actions are grouped by action type, as defined by the local agency. This action type is the same as is used throughout the system. Each action type is assigned a number, which is shown on the action card.

The report is split up by agency sections. This is done by grouping the actions on the basis of the section responsibility of the one staff member performing the specific actions.

Frequency of preparation of the action summary report will vary due to local circumstances. The report will be most usable for a large agency with a low average experience level at the line staff level. Smaller agencies with stable staffing will need the report less frequently, perhaps on a quarterly basis.

Source Registration Report (Figure 3.21)

This report lists basic source data maintained in the data base regarding specific sources. The data are grouped to show general company data, followed by specific data concerning individual emission points at that company location. Data shown in this report may be drawn from registration activities, emission inventory questionnaires, and permit applications.

```
                                           ACTION SUMMARY REPORT
.........................................................................................................
 PERIOD COVERED                          ENFORCEMENT MANAGEMENT SYSTEM                          PAGE    1
 06/01/71 TO 11/20/71                     AIR POLLUTION CONTROL AGENCY                          11/21/71

 TYPE OF ACTION  INSPECTION              INSPECTION
.........................................................................................................

.........................................................................................................
 STAFF MEMBER    SOURCE NAME         ACTION RESULTS    DATE OF   NEXT ACTION    SOURCE DESCRIPTION    COMPLAINT
 AND TITLE       AND LOCATION        HOURS TAKEN       ACTION    AND DATE       POINT DESCRIPTION     IDENTITY
.........................................................................................................

 H. PINKHAM      YORK FINCH GENERAL                    09/30/71  REGISTRATION   HOSPITAL
 INSPECTOR       HARTFORD CT 06002      HOURS                    10/30/71       FUEL COMBUSTION-GAS

 R. YOCUM        GOODYEAR FOSSAGO LTD FOLLOW NXT STEP  09/30/71  REGISTRATION   RUBBER TIRE PLANT
 INSPECTOR       HARTFORD CT 06002    02 HOURS                   10/30/71       FUEL COMBUSTION-GAS

 A.W. BOSTICK    WILCOX PAINT CO.                      09/15/71  REGISTRATION   WATER BASE PAINT MANUF.
 INSPECTOR       DIXON NJ 09123       02 HOURS                   10/30/71       FURNACE

                 TOTAL ACTIONS DURING PERIOD     3
```

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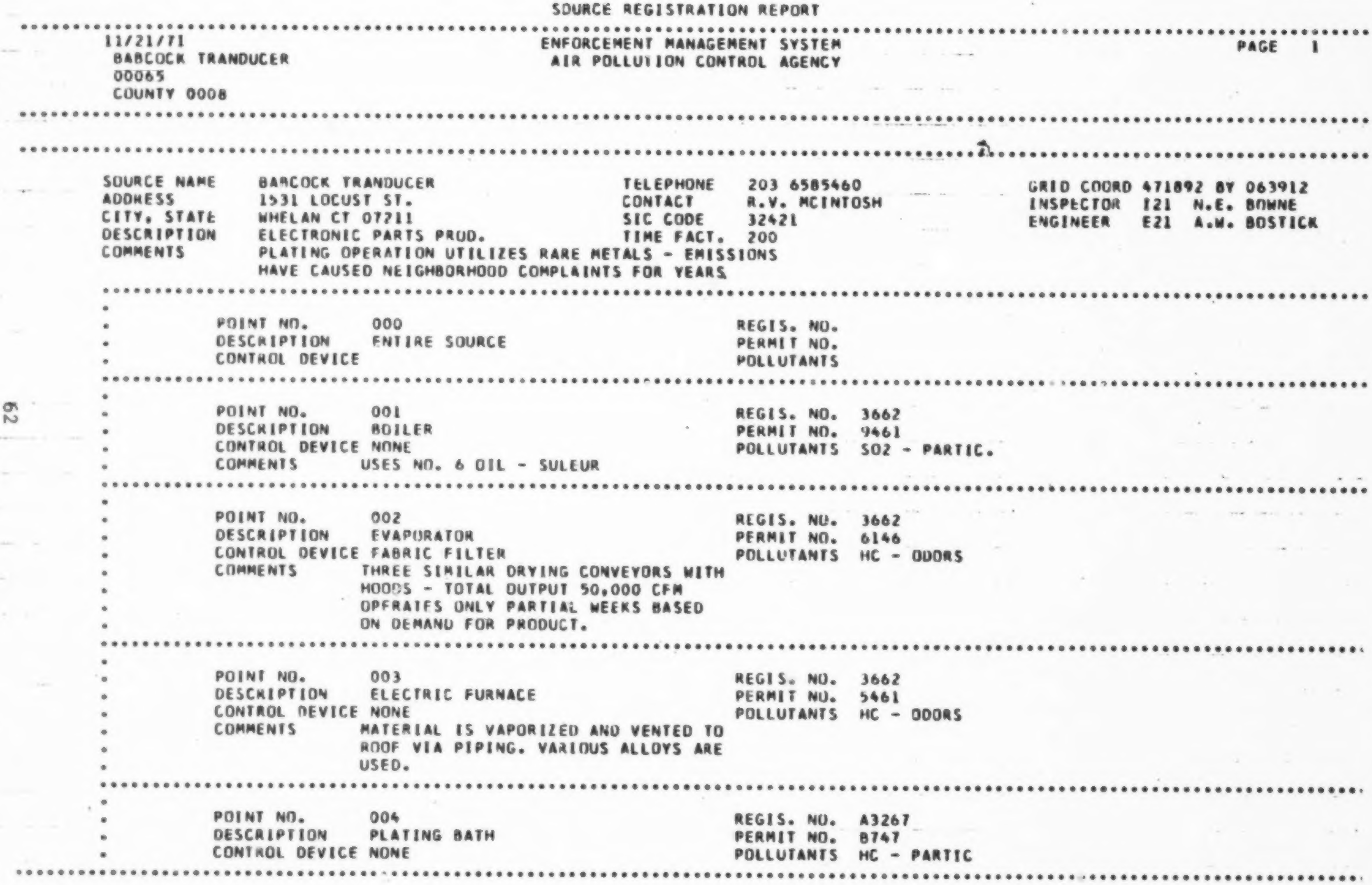
Figure 3.20. Action summary report prepared by computerized system.



```
                                          SOURCE REGISTRATION REPORT
..............................................................................................................
        11/21/71                           ENFORCEMENT MANAGEMENT SYSTEM                              PAGE   1
         BABCOCK TRANDUCER                  AIR POLLUTION CONTROL AGENCY
         00065
         COUNTY 0008
..............................................................................................................
..............................................................................................................
        SOURCE NAME    BABCOCK TRANDUCER                TELEPHONE    203 6585460              GRID COORD 471892 BY 063912
        ADDRESS        1531 LOCUST ST.                  CONTACT      R.V. MCINTOSH            INSPECTOR  I21  N.E. BOWNE
        CITY, STATE    WHELAN CT 07211                  SIC CODE     32421                    ENGINEER   E21  A.W. BOSTICK
        DESCRIPTION    ELECTRONIC PARTS PROD.           TIME FACT.   200
        COMMENTS       PLATING OPERATION UTILIZES RARE METALS - EMISSIONS
                       HAVE CAUSED NEIGHBORHOOD COMPLAINTS FOR YEARS
        ......................................................................................................
        .
        .      POINT NO.      000                           REGIS. NO.
        .      DESCRIPTION    ENTIRE SOURCE                 PERMIT NO.
        .      CONTROL DEVICE                               POLLUTANTS
        ......................................................................................................
        .
        .      POINT NO.      001                           REGIS. NO.  3662
        .      DESCRIPTION    BOILER                        PERMIT NO.  9461
        .      CONTROL DEVICE NONE                          POLLUTANTS  SO2 - PARTIC.
        .      COMMENTS       USES NO. 6 OIL - SULEUR
        ......................................................................................................
        .
        .      POINT NO.      002                           REGIS. NO.  3662
        .      DESCRIPTION    EVAPORATOR                    PERMIT NO.  6146
        .      CONTROL DEVICE FABRIC FILTER                 POLLUTANTS  HC - ODORS
        .      COMMENTS       THREE SIMILAR DRYING CONVEYORS WITH
        .                     HOODS - TOTAL OUTPUT 50,000 CFM
        .                     OPFRAIFS ONLY PARTIAL WEEKS BASED
        .                     ON DEMAND FOR PRODUCT.
        ......................................................................................................
        .
        .      POINT NO.      003                           REGIS. NO.  3662
        .      DESCRIPTION    ELECTRIC FURNACE              PERMIT NO.  5461
        .      CONTROL DEVICE NONE                          POLLUTANTS  HC - ODORS
        .      COMMENTS       MATERIAL IS VAPORIZED AND VENTED TO
        .                     ROOF VIA PIPING. VARIOUS ALLOYS ARE
        .                     USED.
        ......................................................................................................
        .
        .      POINT NO.      004                           REGIS. NO.  A3267
        .      DESCRIPTION    PLATING BATH                  PERMIT NO.  B747
        .      CONTROL DEVICE NONE                          POLLUTANTS  HC - PARTIC
..............................................................................................................
```

Figure 3.21. Source registration report prepared by computerized system.

The assignment of various types of processing and combustion units as emission points will vary based on local regulations and practice. Similar processes may be grouped together, or listed as individual points. Generally speaking, assignment of emission points should follow the permit unit concept, as practiced by the individual agency.

The report is printed in sequence by source number. If several agencies are utilizing the system on a combined basis, the report is grouped by agency.

Edit and Update Report (Figure 3.22)

This is an audit trail and error correction report concerning the details of system operation. Normally, only the data bank coordinator will deal with the entries on the report. They reflect the various types of input to the system, and indicate the action the system has taken. For example, some input is rejected based on a failure to pass certain system edits (explained in more detail in the Appendix).

The DBC should review the report, which is produced for every system cycle. It serves to record all input received of the system, and to show errors in the input which the system has detected. The DBC is expected to take action to correct and resubmit any input which failed to pass the edits.

Action Cards (Figures 3.23 through 3.27)

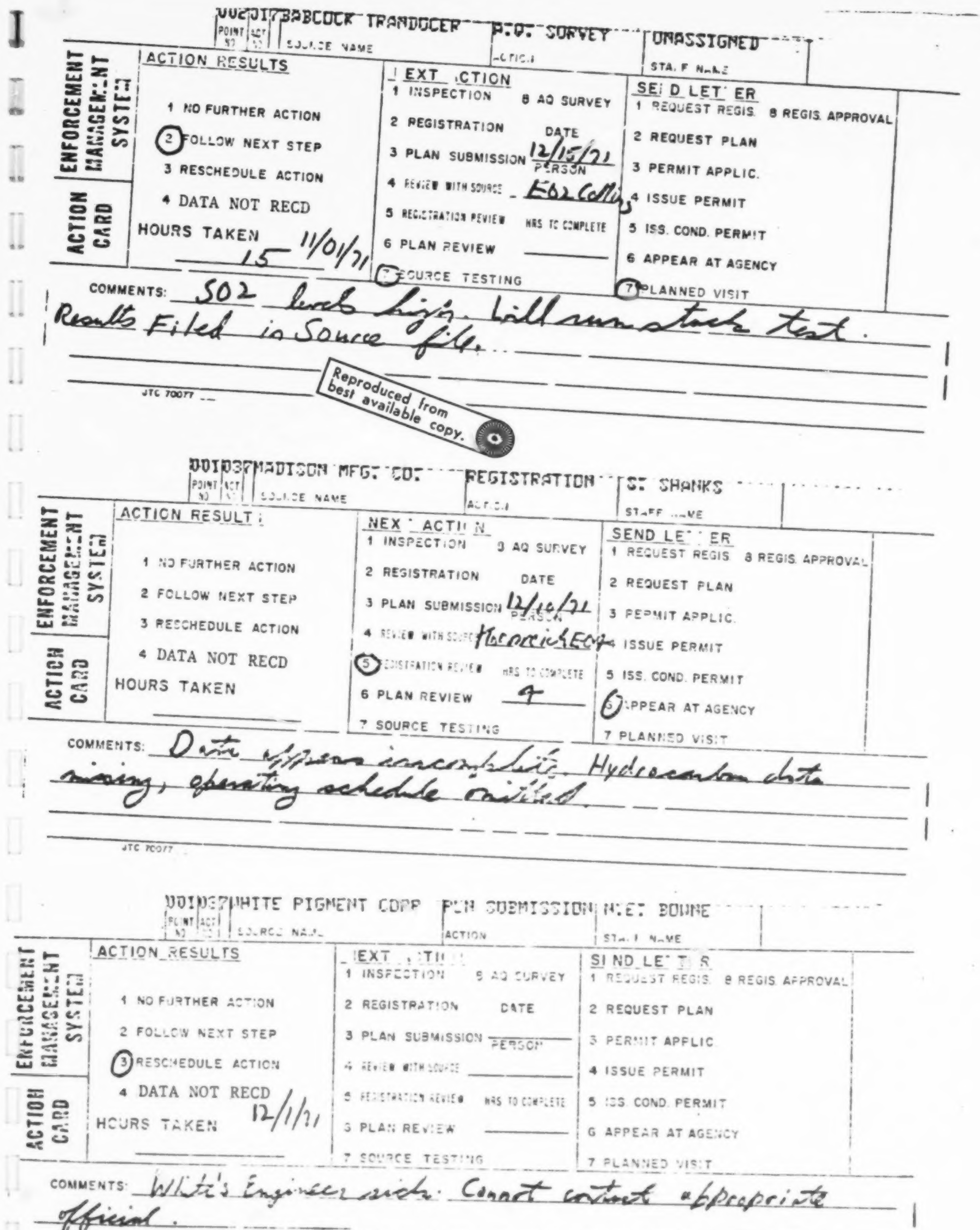
A number of filled in action cards and special action cards are shown in the attached figures. The details of the cards are shown in the Input Forms section (Section 3.4). These are shown here to indicate how they might appear in actual use in normal day-to-day activity.

```
*******************************************************************************************************
    11/21/71                          ENFORCEMENT MANAGEMENT SYSTEM                          PAGE  1
                                      AIR POLLUTION CONTROL AGENCY                           WEEK 49
                                        EDIT AND UPDATE REPORT
                                ENFORCEMENT MANAGEMENT FILE INPUT SERIAL 000003
*******************************************************************************************************

*******************************************************************************************************
 COUNTY  SOURCE  ACTION  EMISSION  CARD                                                   UPDATE     ERROR
  CODE     NO.     NO.     POINT   CODE          REMAINING DATA ON CARD                   ACTION    MESSAGE
*******************************************************************************************************

  0008    00065    00       000     3   ELECTRONIC PARTS PROD.                         C   CHANGED
  0008    00065    03       000     7   BABCOCK TRANDUCER   INSPECTION         03      C   REJECTED  BAD-ACTION
  0008    00065    02       002     7   BABCOCK TRANDUCER   INSPECTION         03      C   REJECTED  BAD-ACTION
  0008    00065    00       003     6   2ROOF VIA PIPING. NUMEROUS ALLOYS              C   REJECTED  NOT ON FILE
  0008    00065    00       004     6                        A3267      B747           C   CHANGED
  0010    00009    00       000     5   ENTIRE SOURCE                                  N   ADDED
  0018    00020    02       002     7   WILCOX PAINT CO.    REGISTRATION     0203010302 C   CHANGED,
  0099    00003    00       000     1   07046131006006BROWN MANUFACTURING  1132MORSE AV     150     N   ADDED
  0099    00003    00       000     2   HARTFORD        NJ06102203527410lMR. SHANKS     35123104E04   N   ADDED
  0099    00003    00       000     3   MOLDED PARTS FACILITY                          N   ADDED
  0099    00003    00       000     4   1PRODUCES PLASTIC PARTS AND CABINETS FOR CONSUMER   N   ADDED
  0099    00003    00       000     4   2APPLIANCE MANUFACTURES                        N   ADDED
  0099    00003    00       001     5   BOILER              NONE            PART., SO2     N   ADDED
  0099    00003    00       001     6   1HAS SMOKE DETECTOR ATTACHED TO     A24680      P4689A     N   ADDED
  0099    00003    00       001     6   2AUDIBLE ALARM                                 N   ADDED
  0099    00003    00       002     5   MOLDING PRESS           ACT CHAR ADSORP UNITHC N   ADDED
  0099    00003    00       002     6   1DEVICE INSTALLED OCT. 1970. HAS    A327109     1246321    N   ADDED
  0099    00003    00       002     6   2ELIMINATED NEIGHBORHOOD COMPLAINTS            N   ADDED
  0099    00003    00       002     6   3OF ODORS.                                     N   ADDED
  0159    00001    02       000     7   MIDDLEBURY COLLEGE  PLAN REVIEW        02020104   C   CHANGED
  0159    00003    02       001     7   WHITE PIGMENT CORP  REV. W/SOURCE      04030504   C   CHANGED
  0160    00004    00       001     5   OIL BURNER              MANUAL CONTROL     PART., SO2   N   ADDED
  0170    00011    02       001     7   MILTON STEAM PLANT  REGIST. REVIEW     0205010305 C   CHANGED
```

Figure 3.22. Edit and Update Report Prepared by Computerized System.



002017 BABCOCK TRANDUCER | A.Q. SURVEY | UNASSIGNED
POINT NO | ACT NO | SOURCE NAME | ACTION | STAFF NAME

ENFORCEMENT MANAGEMENT SYSTEM
ACTION CARD

ACTION RESULTS
1 NO FURTHER ACTION
[✓ 2 FOLLOW NEXT STEP]
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN 15 11/01/71

NEXT ACTION
1 INSPECTION
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
6 PLAN REVIEW
[✓ 7 SOURCE TESTING]
8 AQ SURVEY
DATE 12/15/71
PERSON Ed Collins
HRS TO COMPLETE

SEND LETTER
1 REQUEST REGIS.
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
[✓ 7 PLANNED VISIT]
8 REGIS. APPROVAL

COMMENTS: SO2 levels high. Will run stack test. Results Filed in Source file.

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001037 MADISON MFG. CO. | REGISTRATION | S. SHANKS
POINT NO | ACT NO | SOURCE NAME | ACTION | STAFF NAME

ENFORCEMENT MANAGEMENT SYSTEM
ACTION CARD

ACTION RESULTS
1 NO FURTHER ACTION
2 FOLLOW NEXT STEP
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN

NEXT ACTION
1 INSPECTION
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
[✓ 5 REGISTRATION REVIEW]
6 PLAN REVIEW
7 SOURCE TESTING
8 AQ SURVEY
DATE 12/10/71
PERSON Kenrick ECG
HRS TO COMPLETE 4

SEND LETTER
1 REQUEST REGIS.
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
[✓ 6 APPEAR AT AGENCY]
7 PLANNED VISIT
8 REGIS. APPROVAL

COMMENTS: Data appears incomplete. Hydrocarbon data missing, operating schedule omitted.

JTC 70077

001037 WHITE PIGMENT CORP | PLN SUBMISSION | M.E. BOUNE
POINT NO | ACT NO | SOURCE NAME | ACTION | STAFF NAME

ENFORCEMENT MANAGEMENT SYSTEM
ACTION CARD

ACTION RESULTS
1 NO FURTHER ACTION
2 FOLLOW NEXT STEP
[✓ 3 RESCHEDULE ACTION]
4 DATA NOT RECD 12/1/71
HOURS TAKEN

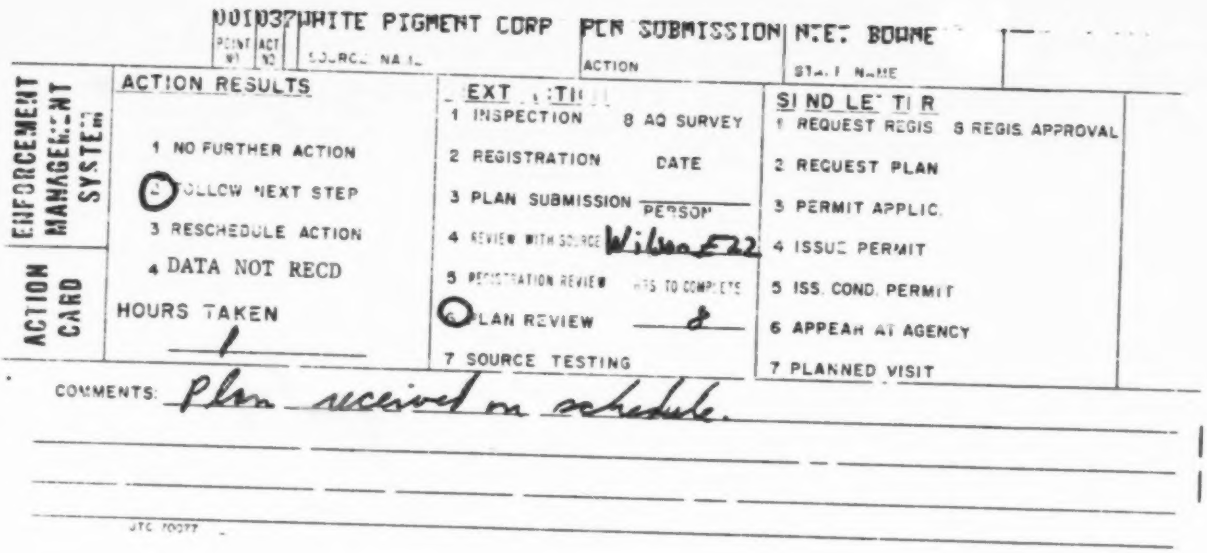
NEXT ACTION
1 INSPECTION
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
6 PLAN REVIEW
7 SOURCE TESTING
8 AQ SURVEY
DATE
PERSON
HRS TO COMPLETE

SEND LETTER
1 REQUEST REGIS.
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT
8 REGIS. APPROVAL

COMMENTS: White's Engineer sick. Cannot contact appropriate official.

JTC 70077

Figure 3.23. Sample action cards.



POINT NO	ACT NO	SOURCE NAME	ACTION	STAFF NAME
001	037	WHITE PIGMENT CORP	PLN SUBMISSION	N.E. BOANE

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

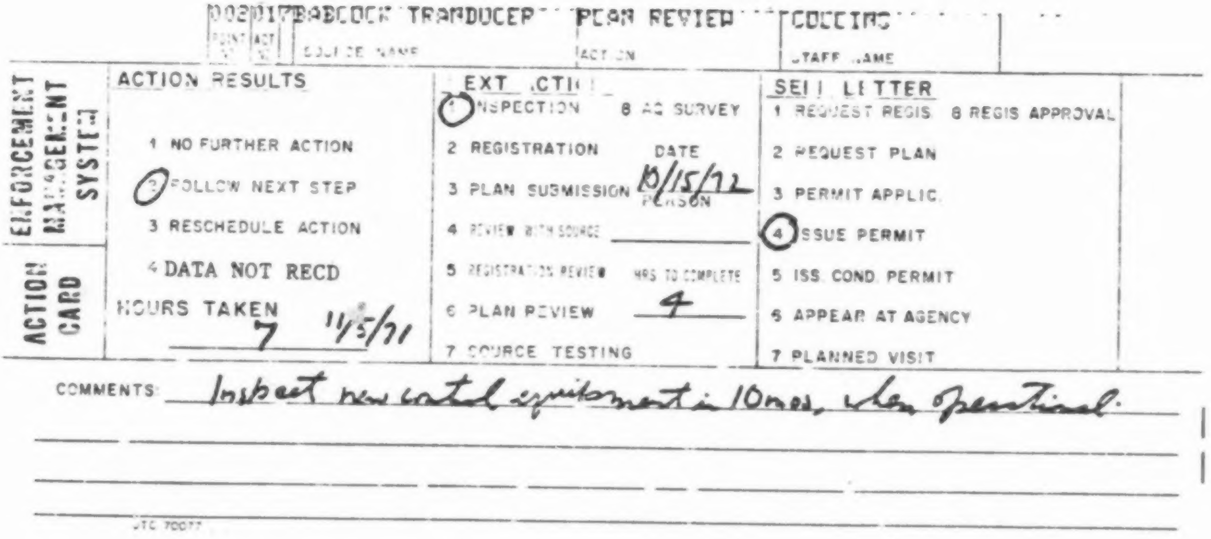
ACTION RESULTS
1 NO FURTHER ACTION
[✓ 2 FOLLOW NEXT STEP]
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN 1

NEXT ACTION
1 INSPECTION 8 AQ SURVEY
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
[✓ 6 PLAN REVIEW]
7 SOURCE TESTING
DATE
PERSON Wilson E22
HRS TO COMPLETE 8

SEND LETTER
1 REQUEST REGIS 8 REGIS APPROVAL
2 REQUEST PLAN
3 PERMIT APPLIC.
4 ISSUE PERMIT
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT

COMMENTS: Plan received on schedule.

JTC 70077



POINT NO	ACT NO	SOURCE NAME	ACTION	STAFF NAME
002	017	BABCOCK TRANDUCER	PLAN REVIEW	COLLINS

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

ACTION RESULTS
1 NO FURTHER ACTION
[✓ 2 FOLLOW NEXT STEP]
3 RESCHEDULE ACTION
4 DATA NOT RECD
HOURS TAKEN 7 11/5/71

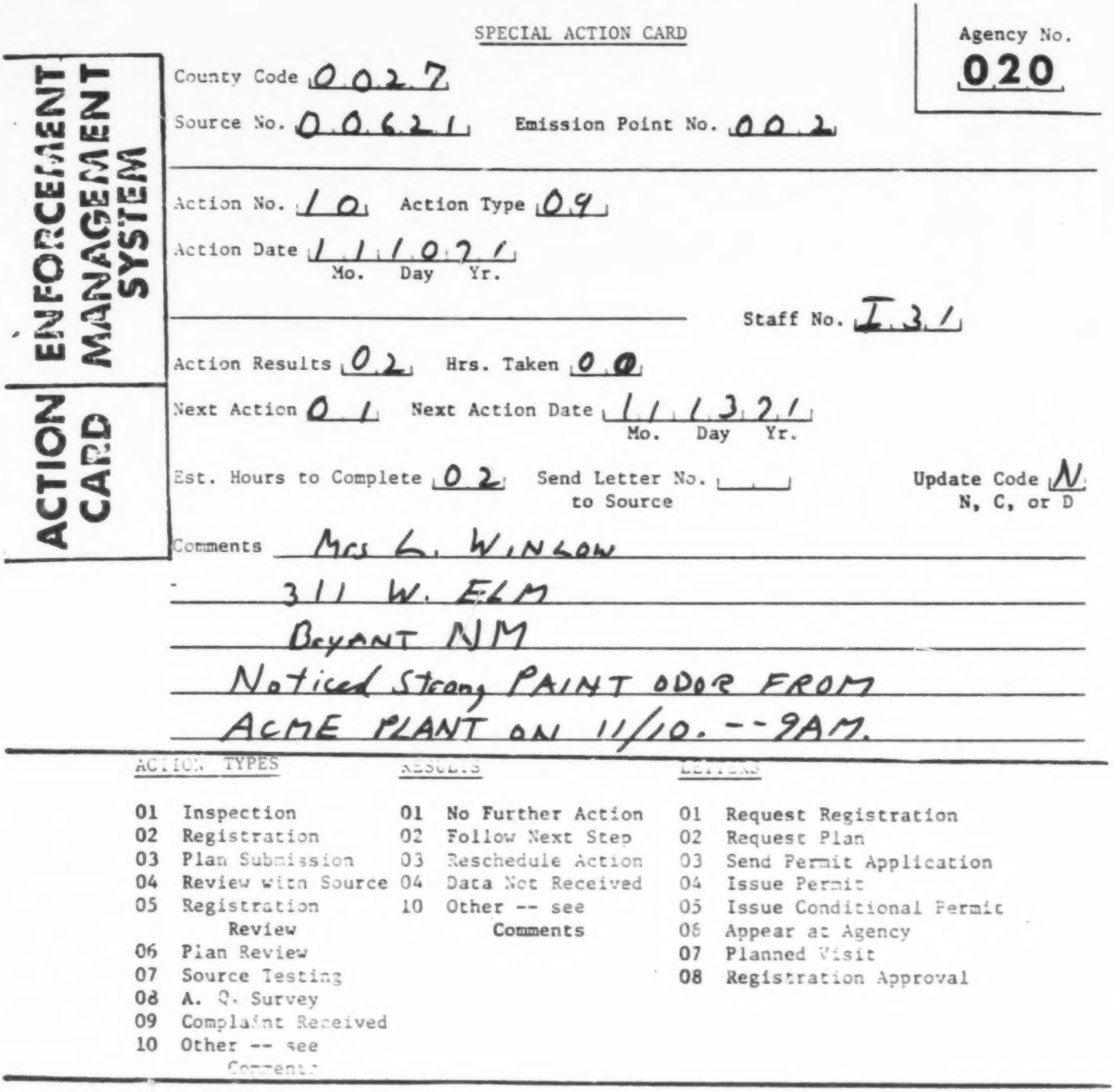
NEXT ACTION
[✓ 1 INSPECTION] 8 AQ SURVEY
2 REGISTRATION
3 PLAN SUBMISSION
4 REVIEW WITH SOURCE
5 REGISTRATION REVIEW
6 PLAN REVIEW
7 SOURCE TESTING
DATE 10/15/72
PERSON
HRS TO COMPLETE 4

SEND LETTER
1 REQUEST REGIS 8 REGIS APPROVAL
2 REQUEST PLAN
3 PERMIT APPLIC.
[✓ 4 ISSUE PERMIT]
5 ISS. COND. PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT

COMMENTS: Inspect new control equipment in 10 mos. when operational.

JTC 70077

Figure 3.24. Sample action cards.



ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

SPECIAL ACTION CARD

Agency No. **020**

County Code 0 0 2 7

Source No. 0 0 6 2 1 Emission Point No. 0 0 2

Action No. 1 0 Action Type 0 9

Action Date 1 1 1 0 7 1 (Mo. Day Yr.)

Staff No. I 3 1

Action Results 0 2 Hrs. Taken 0 0

Next Action 0 1 Next Action Date 1 1 1 3 7 1 (Mo. Day Yr.)

Est. Hours to Complete 0 2 Send Letter No. to Source ____ Update Code N (N, C, or D)

Comments Mrs L. WINLOW
311 W. ELM
BRYANT NM
Noticed Strong PAINT ODOR FROM
ACME PLANT ON 11/10. --9AM.

ACTION TYPES

01	Inspection
02	Registration
03	Plan Submission
04	Review with Source
05	Registration Review
06	Plan Review
07	Source Testing
08	A. Q. Survey
09	Complaint Received
10	Other -- see Comments

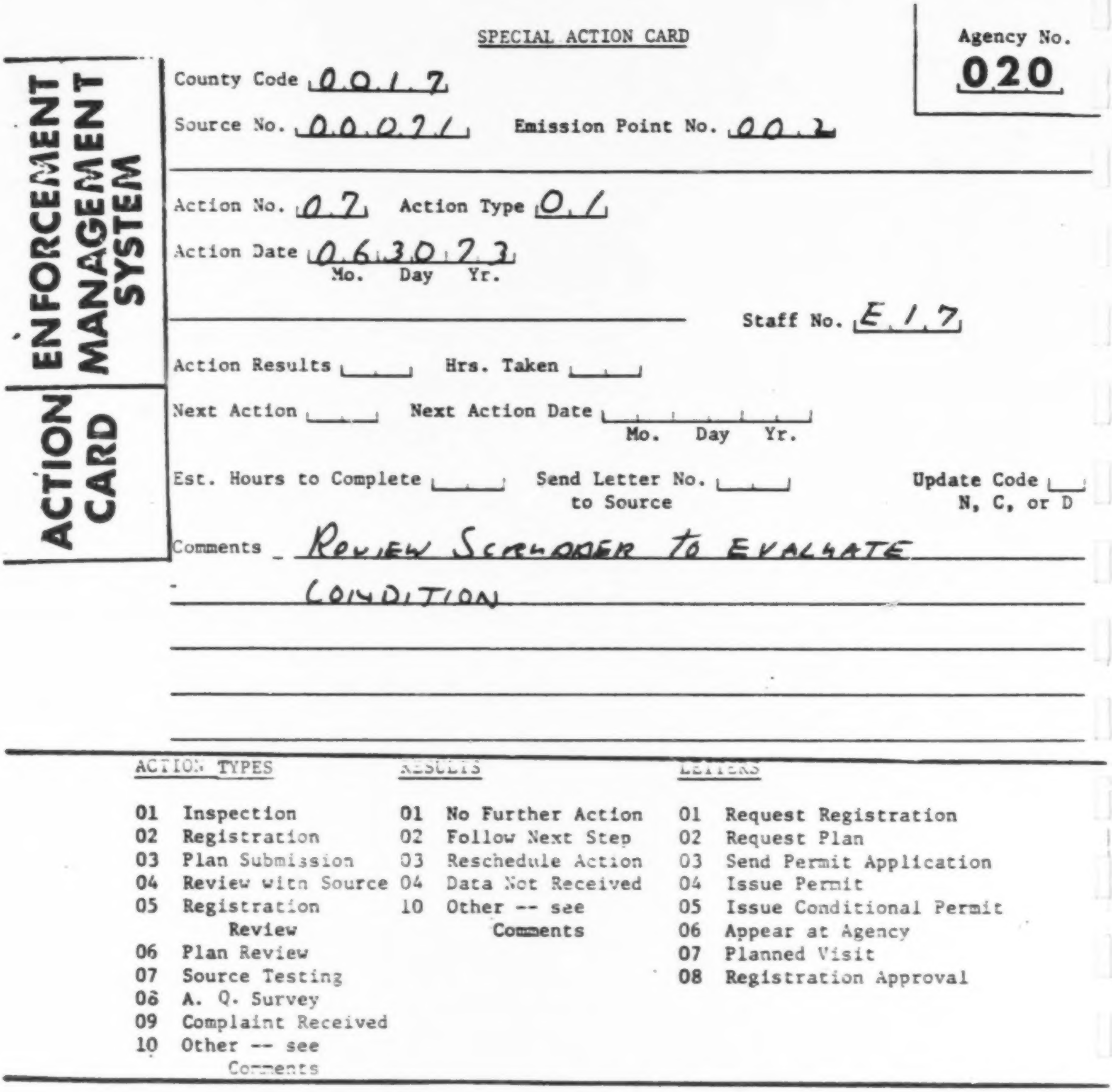
RESULTS

01	No Further Action
02	Follow Next Step
03	Reschedule Action
04	Data Not Received
10	Other -- see Comments

LETTERS

01	Request Registration
02	Request Plan
03	Send Permit Application
04	Issue Permit
05	Issue Conditional Permit
06	Appear at Agency
07	Planned Visit
08	Registration Approval

Figure 3.25. Sample special action cards.



ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

SPECIAL ACTION CARD

Agency No. 020

County Code 0017

Source No. 00071 Emission Point No. 002

Action No. 07 Action Type 01

Action Date 063073 (Mo. Day Yr.)

Staff No. E17

Action Results ___ Hrs. Taken ___

Next Action ___ Next Action Date ___ (Mo. Day Yr.)

Est. Hours to Complete ___ Send Letter No. to Source ___ Update Code ___ N, C, or D

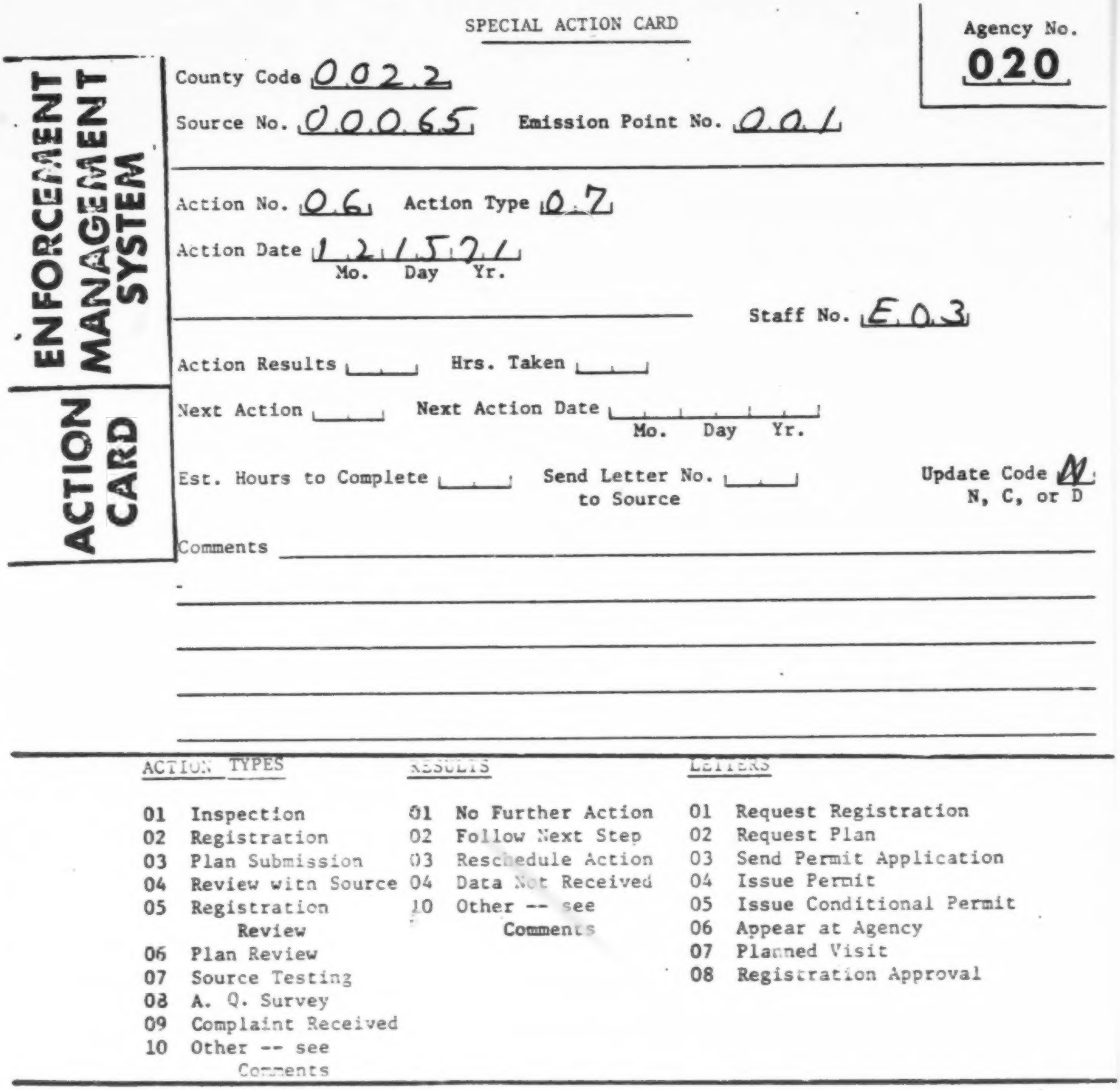
Comments REVIEW SCRUBBER TO EVALUATE CONDITION

ACTION TYPES	
01	Inspection
02	Registration
03	Plan Submission
04	Review with Source
05	Registration Review
06	Plan Review
07	Source Testing
08	A. Q. Survey
09	Complaint Received
10	Other -- see Comments

RESULTS	
01	No Further Action
02	Follow Next Step
03	Reschedule Action
04	Data Not Received
10	Other -- see Comments

LETTERS	
01	Request Registration
02	Request Plan
03	Send Permit Application
04	Issue Permit
05	Issue Conditional Permit
06	Appear at Agency
07	Planned Visit
08	Registration Approval

Figure 3.26. Sample special action cards.



SPECIAL ACTION CARD

Agency No. **020**

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

County Code 0022

Source No. 00065 Emission Point No. 001

Action No. 06 Action Type 07

Action Date 12 15 71 (Mo. Day Yr.)

Staff No. E03

Action Results ____ Hrs. Taken ____

Next Action ____ Next Action Date ____ (Mo. Day Yr.)

Est. Hours to Complete ____ Send Letter No. to Source ____ Update Code N (N, C, or D)

Comments ____

ACTION TYPES

- 01 Inspection
- 02 Registration
- 03 Plan Submission
- 04 Review with Source
- 05 Registration Review
- 06 Plan Review
- 07 Source Testing
- 08 A. Q. Survey
- 09 Complaint Received
- 10 Other -- see Comments

RESULTS

- 01 No Further Action
- 02 Follow Next Step
- 03 Reschedule Action
- 04 Data Not Received
- 10 Other -- see Comments

LETTERS

- 01 Request Registration
- 02 Request Plan
- 03 Send Permit Application
- 04 Issue Permit
- 05 Issue Conditional Permit
- 06 Appear at Agency
- 07 Planned Visit
- 08 Registration Approval

Figure 3.27. Sample special action cards.

3.6 Files Maintained by the Data Bank Coordinator

Some of the output reports are maintained at a central point by the data bank coordinator. These are the source action file, the two sets of geographic locators (by grid coordinates and by city and street addresses), and the source registration report. In addition, other files containing detailed calculations, correspondence, and other data not directly involved in the system are required for each source. In some cases, these manual files may be split and retained by individual sections within the agency which maintain jurisdiction over the particular source. When the system is being operated on a multi-agency or multi-office basis, the reports that are maintained centrally are split between the agencies. The system groups the data in appropriate sequence for such a split.

Other reports such as the individual future schedules and the section future schedules, the action summary, the overdue action reports and the action card produced by the system are distributed to individual sections or staff members as appropriate. Figure 3.28 indicates the flow of the various reports.

3.7 System Startup

Proper startup procedures are essential to the operation of the system. Time invested in this initial activity will be well spent in terms of future payoff by the system. System procedures represent a significant departure from previous practices and occasionally individuals may resist adapting their day-to-day practices to conform with the system. In each conversion, some difficulties can be expected. It will be important at these times to differentiate between conversion problems and any continuing problems. The

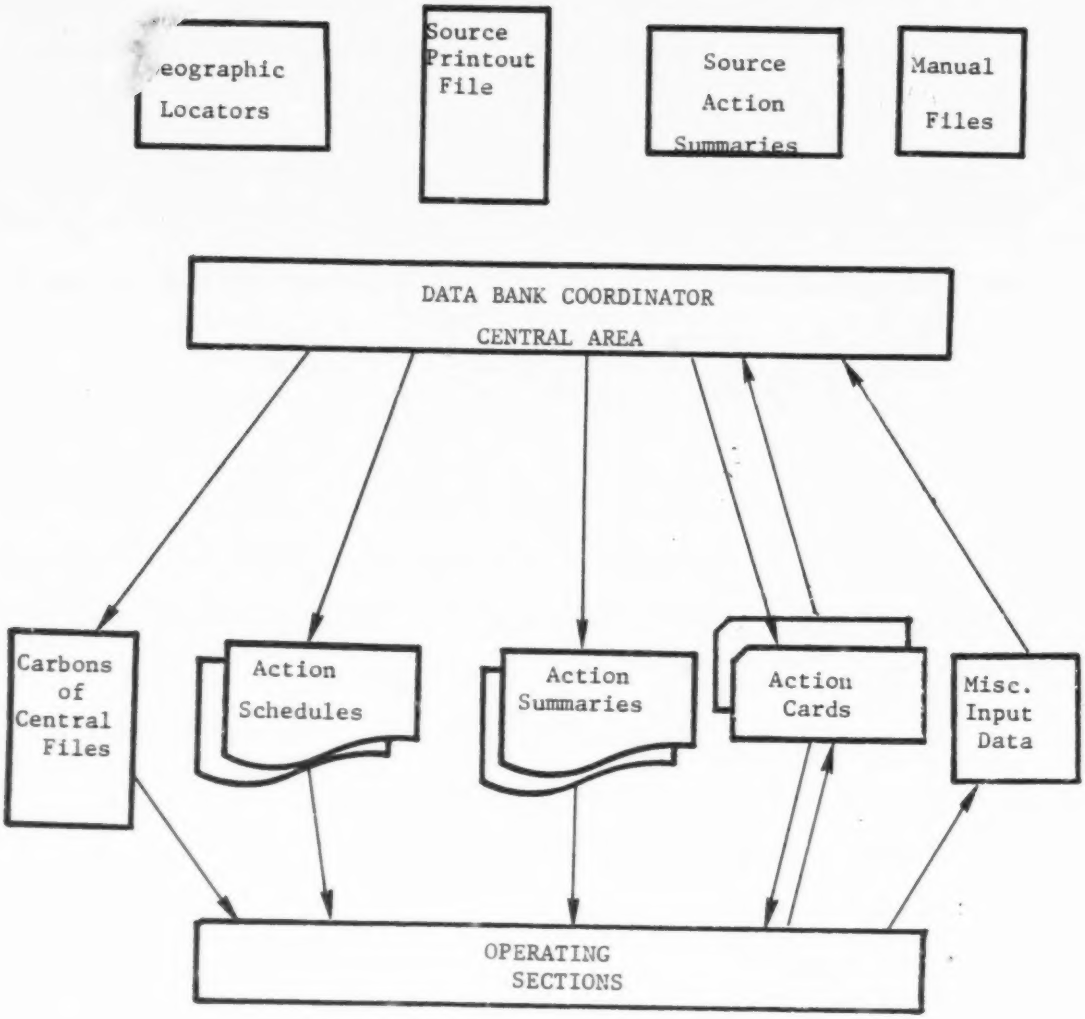

eographic Locators
Source Printout File
Source Action Summaries
Manual Files
DATA BANK COORDINATOR CENTRAL AREA
Carbons of Central Files
Action Schedules
Action Summaries
Action Cards
Misc. Input Data
OPERATING SECTIONS

Figure 3.28. Flow of data.

attached milestone chart, Figure 3.29, indicates a logical sequence of steps to be followed to begin operation of the Standardized Computerized version of the Enforcement Management System. The milestone chart is arranged in three vertical lines. The right line indicates milestones of computer oriented activities during the conversion period. The middle line relates to physical activities which must take place to obtain forms and establish communications. The left line involves personnel activities such as training and conversion activity. These activities have been numbered and are discussed below under the number indicated on the chart.

1. Select EMS Project Leader. This topic is discussed in detail in Section 3.1.

2. Make Arrangements for Computer Usage. A suitable computer must be located and arrangements made for time on the equipment. System requirements are the availability of a COBOL compiler, at least 40K of core memory, 3 tape drives (or the equivalent) and sorting capability, card reader, card punch, printer, modified keypunch (to interpret action cards) or regular card interpreter.

3. Select Data Bank Coordinator. This topic is also discussed in detail in Section 3.1.

4. Designate Programmer to Install, Maintain System. An individual must be designated to set up the initial system from the material supplied and to maintain the program in operation. He will also be required to investigate occasional problems that will arise in the operation of the system. The problems may or may not relate to the

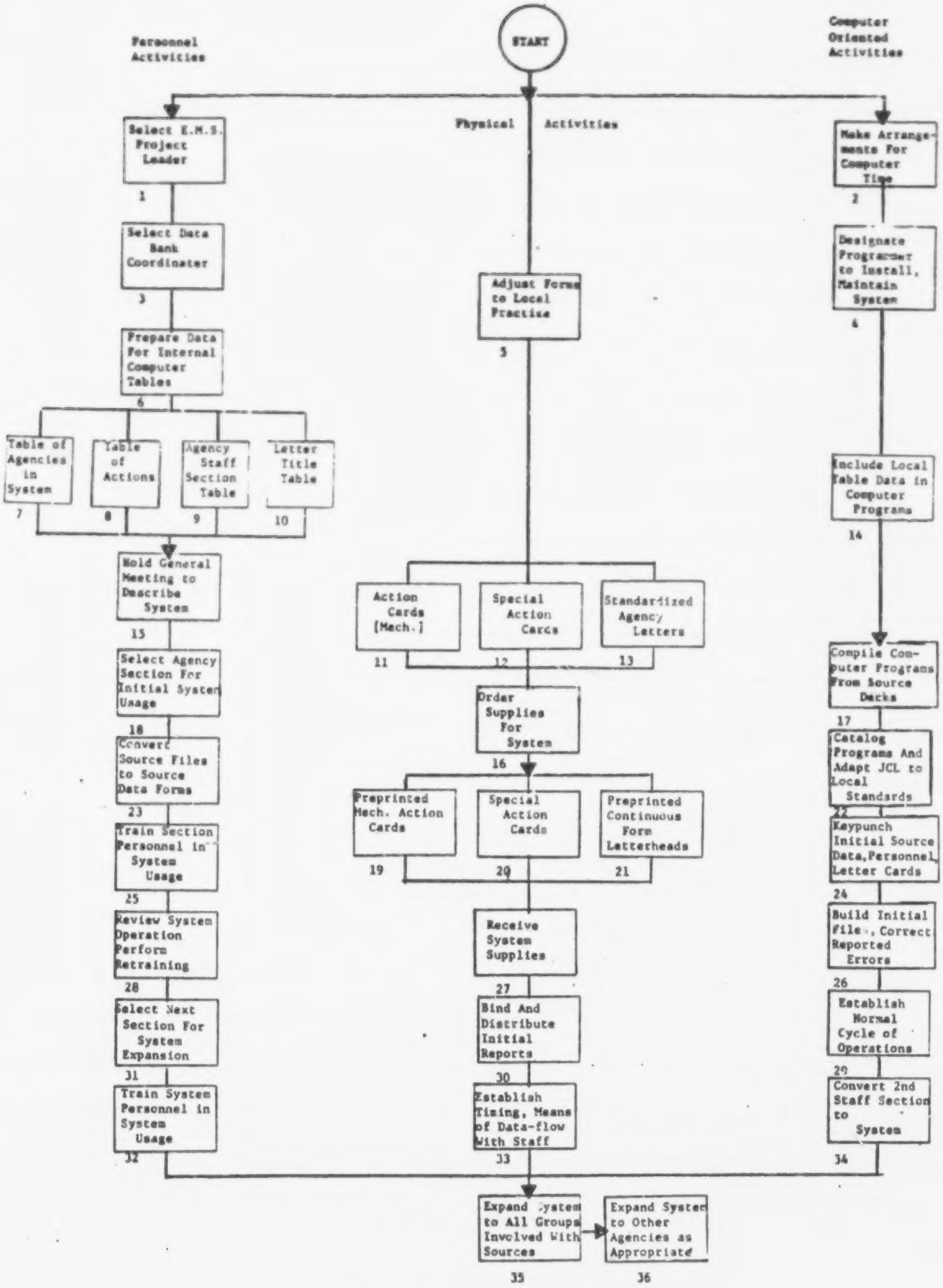

START
Personnel Activities
Physical Activities
Computer Oriented Activities
Select E.M.S. Project Leader
1
Make Arrangements For Computer Time
2
Select Data Bank Coordinator
3
Designate Programmer to Install, Maintain System
4
Adjust Forms to Local Practice
5
Prepare Data For Internal Computer Tables
6
Table of Agencies in System
7
Table of Actions
8
Agency Staff Section Table
9
Letter Title Table
10
Include Local Table Data in Computer Programs
14
Hold General Meeting to Describe System
15
Action Cards [Mech.]
11
Special Action Cards
12
Standardized Agency Letters
13
Compile Computer Programs From Source Decks
17
Select Agency Section For Initial System Usage
18
Order Supplies For System
16
Catalog Programs And Adapt JCL to Local Standards
22
Convert Source Files to Source Data Forms
23
Preprinted Mech. Action Cards
19
Special Action Cards
20
Preprinted Continuous Form Letterheads
21
Keypunch Initial Source Data, Personnel, Letter Cards
24
Train Section Personnel in System Usage
25
Build Initial Files, Correct Reported Errors
26
Receive System Supplies
27
Review System Operation Perform Retraining
28
Establish Normal Cycle of Operations
29
Bind And Distribute Initial Reports
30
Select Next Section For System Expansion
31
Train System Personnel in System Usage
32
Establish Timing, Means of Data-flow With Staff
33
Convert 2nd Staff Section to System
34
Expand System to All Groups Involved With Sources
35
Expand System to Other Agencies as Appropriate
36

Figure 3.29.
Milestone chart.

programs themselves. This will not require a full-time person; someone in the computer installation (rather than the air pollution agency) may be assigned these duties.

5. Adjust Forms to Local Practice. The sample forms supplied with the system represent generalized usage reflecting procedures in a variety of agencies. It is anticipated that virtually all agencies will want to make changes to conform to local agency operation. In particular, the sample letters will probably be modified by every agency. These should be revised after consultation with appropriate agency personnel.

6. Prepare Data for Internal Computer Tables. These tasks must be done in coordination with the maintenance programmer who will actually install the system. He will require certain data to make the system responsive to the particular needs of the local agency.

7. Table of Agencies in System. Initially, only one agency will utilize the system. However, the system can handle a multiple-agency situation and an agency table is contained in the runs themselves. Note that a single agency can utilize the multi-agency system capability to group reports by "regional offices" or other divisions within the agency itself.

8. Table of Actions. These are the actions which correspond to the entries on the special and mechanized action cards required by the system to operate properly.

9. Agency Staff-section Table. A deck of cards is prepared, one for each staff member who will utilize the system. Each staff member must be assigned a three-digit number, the first digit of which is a

letter indicating the section within the agency to which he belongs.

10. Letter Title Table. The standardized letters that have been made up each have a descriptive title which is printed at the top of the letter and also included on the right side of the action cards. The programs contain this information which must be supplied to the person doing the programming maintenance of the system before startup.

11. Action Card, Mechanized Format. Standard 80-column machine processable cards should be obtained from a local supplier in the general format shown in Section 3.3. Changes may be made under the "Next Actions" heading in terms of description of actions which are normally performed by the particular agency. Do not change the action results field without checking carefully as some of these codes trigger various routines in the program. Changes in the next action entry should be coordinated with the programming personnel involved to insure that the computer program and the cards are "in step."

12. Special Action Cards. Changes made in the mechanized action cards should be reflected in the lower portion of the special action card since they must correspond. Note, however, that more actions may be printed on the special action card than on the mechanized version. This is to permit the data bank coordinator more flexibility in entering data into the system. Such actions, as the receipt of a complaint, are not handled in the field, and consequently need only appear on the special action card. Action numbers, however, cannot be duplicated.

13. Standarized Agency Letters. Samples provided reflect general practice in local agencies contacted. The sample letters should be carefully reviewed and modified for usage by each agency. It may be that existing letters can be used without alterations by the system. In general, the more letters that are available to the staff members using the system, the more likely that clerical work will be reduced. The object is to provide flexibility by having available a variety of letters to meet all standarized situations that may occur. The heading of the letter cannot be altered without making programming changes.

14. Include Local Table Data in Computer Programs. A number of tables in the program must be modified to adapt to local regulations and practices. All that is required is that the source cards be changed to reflect local agency practice. For example, the agency title(s) must be entered into the program as well as the particular actions which the agency expects to perform (see Appendix for details).

15. Hold General Meeting to Describe System. During a regular meeting of agency personnel or during a specially scheduled meeting, the director of the agency should describe the general outline of the system and indicate the installation schedule.

16. Order Supplies for System. Some system items require fairly long lead terms for delivery and should be ordered at once. In addition certain clerical supplies are required for use by the data bank coordinator. These are normally available through established supply channels within the state or governmental structure.

17. Compile Computer Programs from Source Decks. The programs supplied to the agency will be in the form of source decks for compilation using the local computer. The programs were tested on an IBM 360/30 under DOS and have also been run on a 360/50 under OS. Generally speaking, they should run from any COBOL compiler although occasional differences may appear requiring minor modifications. The system utilizes standard sorting techniques; however, in some cases these may have to be adapted to local procedures.

18. Select Agency Section for Initial System Usage. It is recommended that one section of the agency be selected for conversion to the system at startup time. This selection procedure should involve consideration of the section leader - his flexibility and his interest in a system of this type. This section might well be one in which coordination and scheduling problems arise from a large workload.

19. Preprinted Mechanized Cards. These cards should be ordered from a supplier of tab cards who can assist in the forms design. Costs run from $1.00 to $1.25 per thousand, with a normal setup charge of approximately $75.00 payable one time only. Most suppliers make available a proof of the layout before the cards are printed. This should be carefully reviewed to insure that the layout reflects what is actually wanted by the agency. Note that there are two types of action cards for use depending on locally available equipment to print data across the top of the cards (interpreting). Standard interpreter devices generally have a 60-column line, whereas interpreting keypunches utilize an 80-column format. Availability of local equipment to print the source and other data

at the top of the card should be reviewed to make sure that the fields at the top of the card will match the available printing.

20. Special Action Cards. These so-called cards are actually 8-1/2x 11 sheets which can be printed using standard processes or multilith.

21. Preprinted Continuous Form Letterheads. This form is designed for use on the computer printer to print the standardized letters and certificates to sources. It should consist of two or more parts so that a file copy may be retained in the agency files. The actual agency letterhead need only be printed on the first copy. This should reflect the normal letterhead used by the air pollution agency. In some cases an agency may not want to invest in these forms. Standard computer paper is available in letter size sheets and can be used for this purpose. Agency identification can then be supplied by means of a rubber stamp designating the agency.

22. Catalogue Programs and Adapt JCL to Local Standards. The local programmer should adapt the JCL (job control language) to meet the local requirements or to conform to the peculiarities of the local equipment. In particular, there may be differences in the way in which a particular installation wishes to handle the operation of the series of runs. In most cases, all the programs will be catalogued on a disk and the series will be executed from the job control language deck. In others, each program will be run from the object decks. The latter option is less desirable.

23. Convert Source Files to Source Data Forms. For sources which are

currently interacting with the section of the agency selected for initial conversion, it will be necessary to set up basic records on magnetic tape reflecting information already held in the files. A decision must be made concerning whether or not past actions should be picked up for system purposes. In general it is recommended that only actions which are current or scheduled for the future should be included, but local considerations may modify this recommendation.

24. Keypunch Initial Source Data, Personnel, Letter Cards. The Appendix contains keypunch instructions for all forms which are normally punched. In addition card layouts are available for the personnel and letter cards. The local programmer should coordinate with the keypunch personnel to make sure that these instructions are understood. In particular, the keypunch instructions for the action cards should be carefully reviewed since the handling of these cards requires a moderate amount of training of the keypunch operator. Letter cards and the personnel cards which are entered into the system are only changed infrequently and as a result can be handled from the card layout forms that are available.

25. Train Section Personnel in System Usage. The data bank coordinator should address a meeting of the section and explain system operation, the filling out of the various forms and, particularly, the use of the action cards by individual section personnel. The coordinator should emphasize that initial unfamiliarity with the system may cause problems, but that the overall result of its use will be to improve the availability of information to staff members and reduce clerical work required.

26. Build Initial Files, Correct Reported Errors. The initial system startup utilizes a dummy master tape (see Appendix), followed by the update run itself. Probably a limited amount of initial data should be used for the first run. Note that the complete cycle must be run on every occasion. Otherwise, some data which only appears once (such as Action Cards) may be missed. On the initial pass, it is likely that a certain number of errors of various types will appear on the edit list. These should be carefully checked to determine their cause.

27. Receive System Supplies. Normal time to receive the mechanized action cards is 4 to 6 weeks. Other material can generally be obtained more quickly. The data bank coordinator should follow receipt of supplies closely to make sure that undue delays do not occur.

28. Review System Operation, Perform Retraining. In second and subsequent training sessions, the coordinator should review initial results of the system and discuss problems that have occurred. A likely subject of discussion is the question of who makes what entry on the action cards. For example, when the next action is scheduled to be performed by second group of staff members, the card may have to pass through a number of hands before re-entry into the system. This will vary with local procedures and must be worked out on an individual basis.

29. Establish Normal Cycle of Operations. Working with the DBC to determine normal run frequencies and input timing, the computer facility (staff) should establish a regular operations schedule.

30. Bind and Distribute Initial Reports. Once initial reports are available from the system, they should be bound and distributed. Some

files are maintained centrally; these should be included in standard computer printout binders available from many suppliers. Other reports, such as the individual schedules, go directly to users. Distribution of such reports should include additional explanation of the use that should be made of the data. This will be true as the system is expanded over time.

31. Select Next Section(s) for System Expansion. When the initial system is operating smoothly, additional agency sections should be chosen for conversion to the system. Clearly the system will not be effective until it includes most of the agency, since it involves coordination between sections and the scheduling of activities on a source-related basis. Hence, when a source involves several sections, each must be a part of the system.

32. Train Section Personnel in System Usage. The various training tasks that were performed for the first section should be repeated for new people coming into the system. Problems that occurred with the first section should be corrected in subsequent training as the system expands.

33. Establish Timing And Means of Data Flow with Staff. It is recommended that the system be run on a weekly basis. Certain agencies may wish to vary this timing. The frequency of system runs is based on the agency's experience with the Enforcement Management System; usually, a larger agency will run the system more frequently than a smaller agency.

34. Convert Second Staff Section to System. When the initial batch of data has been processed correctly for one agency staff section and the data bank coordinator has determined that the system is running relatively smoothly, the data for a second staff section should be converted to system operations. This will involve the same steps as the first except that the data will be added to the existing master file rather than starting a new master file from scratch.

35. Expand System to All Groups Involved with Sources. The objective is to have all personnel in the agency who interact with pollution sources operating and scheduling their actions through the Enforcement Management System. Once initial success has been achieved with first groups, this aim should be pursued as soon as possible.

36. Expand System to Other Agencies as Appropriate. As discussed elsewhere, this system can operate on a multi-agency or multi-office basis. In cases where coordination with another agency within the state is required, the system can be of great help to standardize actions that are being performed with various sources. In addition, in situations where a state agency cooperates with a number of local agencies, state agency resources may be greater and computer availability may dictate that the state operate the system for the entire group. Such inter-agency coordination is desirable and should increase the effectiveness of intraction between agencies.

Note that the system provides flexibility in order to accommodate varying local agency practices. For example, an individual agency may insert all the steps in a compliance schedule (dealing with a specific source), even though these steps may extend over a period of years. Conversely, the system will accept entry of a single step at a time. In both cases, the various actions will be processed by the system and maintained in the basic data file. Various reports and summaries (including staff schedules) will list these anticipated actions, whether they stretch far into the future, or cover only the next anticipated action.

3.8 Resources Required

Certain resources will be required both to implement the Enforcement Management System, and to maintain it. Estimates of these resources have been made in terms of man-days and computer time. The estimates have been further stratified for small, medium and large agencies. Figure 3.30 indicates this information. No estimate has been made for supplies, such as action cards, letterheads, etc., as these costs would normally fall within the established office supplies budget. In any case, the amount is not anticipated to be a large one.

Figure 3.30

ESTIMATED TIME FOR SYSTEM STARTUP AND OPERATION

(in Man-Days and Machine Hours)

Level 2 System

System Startup and Data Conversion	Small Agency (10 to 25 Staff Members)	Medium Agency (25 to 100 Staff Members)	Large Agency (over 100 Staff Members)
Computer Programming Personnel	7	8	9
Systems Analyst and Other Senior Personnel	8	10	14
Data Bank Coordinator	12	20	32
Other Technical Personnel	3	5	10
Technical Personnel (being trained)	6	10	22
Data Conversion - Clerical Time	8	12	28
Keypunch Time	4	6	15
Computer Time (Medium Scale Computer, i.e.,360/40 - CPU Time)	2 1/2 hrs.	3 hrs.	3 1/2 hrs.
Continuing Costs.(Normal Operation) Per Month Basis			
Normal Computer Running Time (assumes weekly processing with 360/40)	3 hrs.	4 1/2 hrs.	6 hrs.
Normal Program Maintenance	2	2	4
Data Bank Coordinator	7	14	21
Keypunching	1	2	5

4.0 ADVANCED COMPUTERIZED SYSTEM

4.1 Description

The advanced computerized system is designed for the larger agency with acute scheduling problems. It contains all the features of the standard computerized system plus an automatic scheduling routine which permits the system to schedule types of activity and personnel without specific input from staff members.

For example, most agencies follow a standard pattern of action with regard to a specific source. Registration is followed by a registration review which is in turn followed by the submission of a compliance plan, a review of the compliance plan, and issuance of the permit. The sequence varies depending on local regulations and practice but the foregoing is generally the pattern followed. This sequence of events is entered into a table in the program as explained in Section 4.2. The computer will automatically select the logical next step when an action card which indicates that the first action has been completed is re-entered into the system. The next step is then selected. An appropriate new action card is prepared by the system and the new action appears on the various reports. A staff member is assigned to perform the next action (normally indicated on the returned action card in the standardized computer system). He is selected from the information contained on the mechanized record for the pollution source involved. This information consists of a general assignment of an inspector and engineer for each source. These are the staff members who would normally work with that particular source. Figure 4.1 is a schematic representation of this scheduling function.

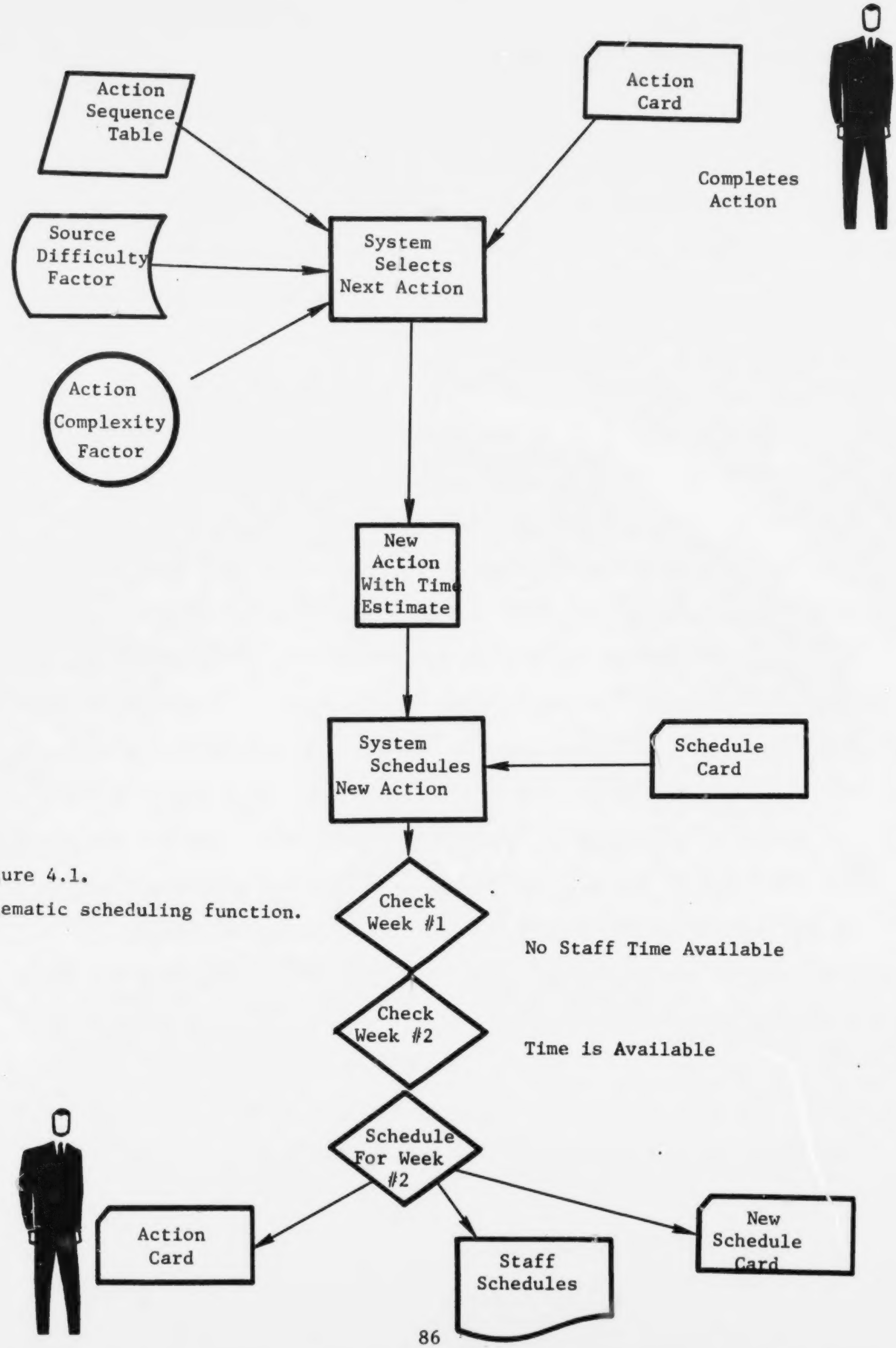

Action Sequence Table
Action Card
Completes Action
Source Difficulty Factor
System Selects Next Action
Action Complexity Factor
New Action With Time Estimate
System Schedules New Action
Schedule Card
Check Week #1
No Staff Time Available
Check Week #2
Time is Available
Schedule For Week #2
Action Card
Staff Schedules
New Schedule Card

Figure 4.1.

Schematic scheduling function.

The question now arises concerning the date that should be assigned to the next action. Clearly, an inspector or engineer would normally have a substantial number of sources assigned to him. It is quite reasonable to assume that many of these sources would require no action for a period, but that suddenly a large number might require activity. The system utilizes a schedule card for each staff member involved, replacing the personnel cards. It tracks the work assigned to the specific individual for a 13-week period into the future on a week-by-week basis. When it is determined that an action should be assigned to a specific staff member, the system checks his schedule card for the next week. It computes the estimated amount of time the function will require and determines whether time is available for that particular staff member from the data on the schedule card.

The computation of the estimated time the job requires is accomplished as follows. Each task has a complexity factor assigned to it. This is the estimated amount of time the task will require for the average source. Each source record also contains a source factor which indicates the anticipated degree of difficulty that is expected to be encountered in dealing with this source. This is entered based on factors such as distance from agency office, degree of complexity of installation and the like. This factor to account for difficulty will change as experience is gained. An average source in all respects (the norm) would have a difficulty factor of 1.0; a very difficult source, a higher number; and an easy-to-deal-with source, a fractional number such as 0.6. To determine the estimated amount of time required for a specific action, the system multiplies the difficulty factor for the source involved times the complexity of the specific type of action.

If the schedule card for the next week indicates that the new action plus actions already assigned total more than 30 hours, the system goes on to the following week to determine if time is available during that week. The 30-hour maximum is an arbitrary figure and can easily be adjusted, based on experience. It was selected on the assumption that approximately 25 percent of the average staff member's 40-hour week is used up in administrative tasks such as meetings, technical updating and so on. When the system encounters a week in which the task can be entered without violating the 30-hour maximum, it schedules the action for that week. Estimated hours for the job are then added to that staff member's total for the particular week, so that additional actions which would bring the total over 30 hours are not scheduled during that period.

A new schedule card is produced during each processing cycle for each staff member. It is recognized that events affecting individual staff members can disrupt this schedule. Disruption can arise from vacations, sickness, technical school attendance, or other "interruptions" to normal activities. When such items are known in advance, they can be manually keypunched onto the schedule card between update cycles. If this is done, the system retains this information and includes recognition of such scheduled activities in its assignments of actions to individual staff members. If a scheduling adjustment must be made after the actions have been assigned for that week, it can be done with action cards using the "reschedule action" option. When such actions are rescheduled, the times on the schedule card must be modified by keypunch entry.

It is recognized that estimating the amount of time for a particular action and then applying these various estimates to schedule a specific staff member's available time is at best an inexact science. Experience in assigning a source difficulty factor and complexity factor for specific jobs should improve the performance of this scheduling function. We recommend that an agency planning to install the Advanced Computerized System start out with the Standard System and work into the Advanced System at a future date. The computer programs are completely compatible. The difficulty factors and the task sequence for the specific agency can be entered in advance of actual implementation. When it is desired to begin the automatic scheduling process, a minimum number of COBOL statements can be changed and the appropriate routines will be brought into operation.

4.2 Technical Details

This section describes in detail the mechanism of the scheduling process. We recommend that the casual reader skip to the next section.

The advanced computerized system (ACS) is an expansion of the basic Enforcement Management System as shown in Figure 4.2 (note that only the update program (framed area) has been altered). To simplify the conversion from the basic system to the advanced system two separate source decks are available. The advanced computerized system's update program includes the same logic, requires the same input, and maintains the same files as the standard computerized system. This enables an agency to move up to the ACS by simply exchanging the update source decks, slightly modifying the personnel deck (explained below), keypunching the week number into the control card and executing the system as usual.

Due to changing requirements, local programming personnel may modify the system from time to time. In upgrading the system to level 3, local personnel should be sure to incorporate any change made to the update program locally.

4.2.1 Computerized scheduling within update program

The automatic scheduling option may be utilized or ignored depending upon whether the week number field (columns 11 and 12) of the control card is used. If left blank (no digits punched in either column), or if 00 is entered, the system will perform exactly as the basic system. If 01 to 52 are entered, the system will automatically schedule actions; if a number greater than 52 is entered, the program will abort (stop). Additional information pertaining to the control card can be found in the Appendix at the back of this manual.

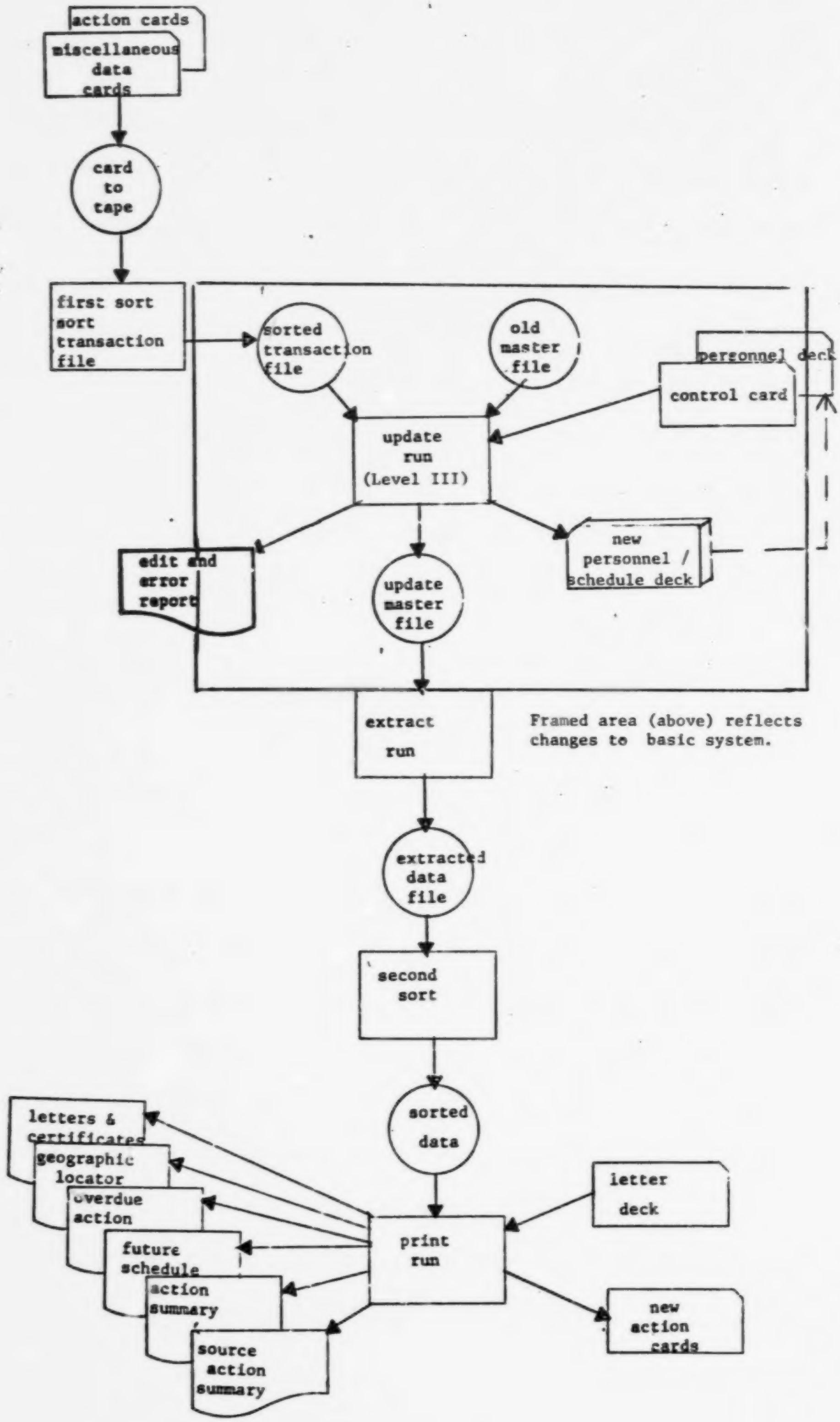

action cards
miscellaneous data cards
card to tape
first sort sort transaction file
sorted transaction file
old master file
personnel deck
control card
update run (Level III)
edit and error report
update master file
new personnel / schedule deck
extract run
Framed area (above) reflects changes to basic system.
extracted data file
second sort
sorted data
letter deck
print run
letters & certificates
geographic locator
overdue action
future schedule
action summary
source action summary
new action cards

Figure 4.2.
System Schematic.

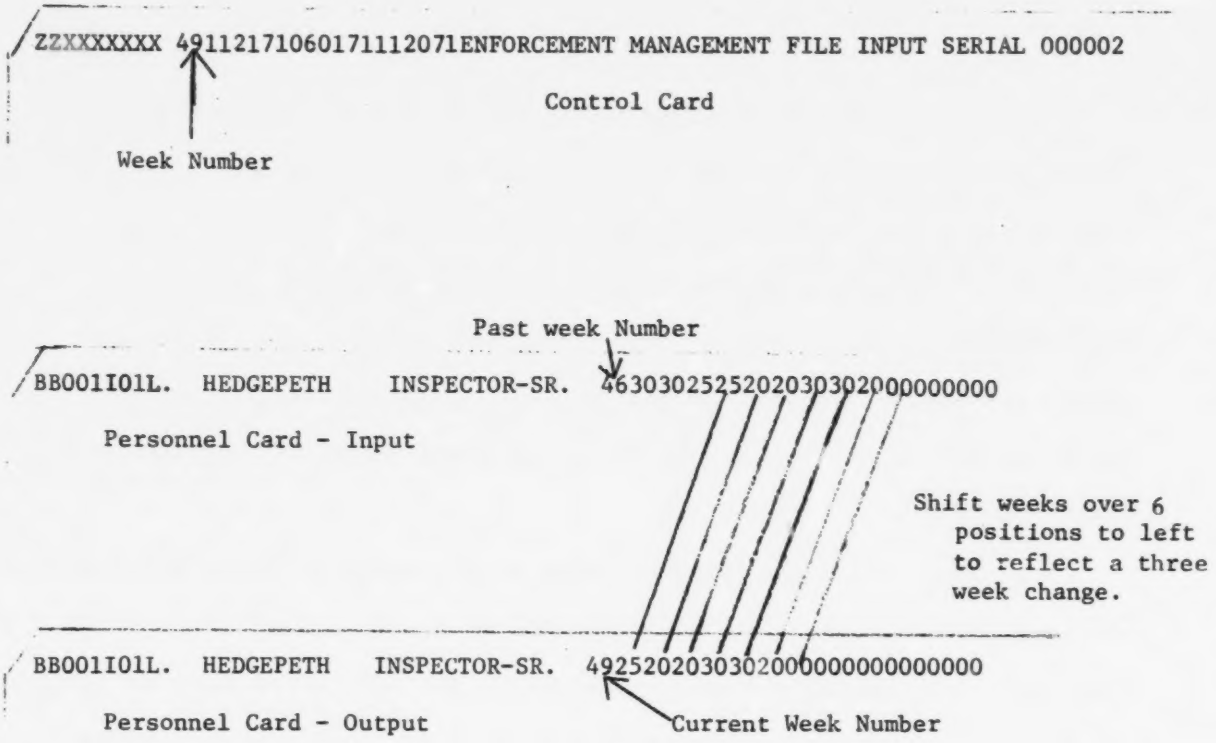
The scheduling module utilizes four separate closed subroutines which are executed from the main logic path. The personnel deck represents the prime source of input to the scheduling logic. At the end of each cycle a new personnel deck is created, which reflects all actions scheduled within the next 13 weeks. This previously created personnel deck is used as input for the next cycle (dotted arrow in Figure 4.2). Before any scheduling can be accomplished the personnel deck must be adjusted by the computer program to reflect the new 13-week period (under paragraph 850-SHIFT-WEEKS). This is accomplished within the system by:

a. dropping the first week on the personnel card (columns 41 and 42)

b. shifting weeks 2 to 13 (columns 43 through 66) two positions to the left (see Figure 4.3), and

c. adding 1 week to the current week number (personnel card columns 39 and 40).

Steps a, b and c are repeated until the current week number is equal to the week number from the control card. During the shifting of the personnel deck, each week is validated for numeric contents. If a week is not numeric (contains a space or alphabetic character), its contents are replaced with zeros. This enables the standard personnel deck (from level 2) to be used without re-keypunching. Any week number (01 to 52) must first be entered into the personnel deck (columns 39 and 40) before running the system. This can be performed semi-automatically through any standard keypunch machine by the use of a program card (control card used to duplicate data from one card to another).



```
ZZXXXXXXX 49112171060171112071ENFORCEMENT MANAGEMENT FILE INPUT SERIAL 000002

BB001I01L.  HEDGEPETH    INSPECTOR-SR.  4630302525202030302000000000

BB001I01L.  HEDGEPETH   INSPECTOR-SR.  4925202030302000000000000000
```

Control Card
Week Number
Past week Number
Personnel Card - Input
Shift weeks over 6 positions to left to reflect a three week change.
Personnel Card - Output
Current Week Number

Figure 4.3.
Shifting weeks on personnel card.

If an action card is returned to the system with the action results field bearing the code for "Follow Next Step" (code 2), the next action will be scheduled by the system. This involves a table lookup in which the current action from the action card (and agency) is matched with the NEXT-ACTION-TABLE entries. The next action code is picked up and placed within the next action field on the action card, and processing continues as if the next action was entered by the data bank coordinator (paragraph named 860-NEXT-ACTION-LOOKUP).

Scheduling of actions is accomplished within paragraph 920-SCHEDULE-ACTION. The total time (in hours) needed to complete an action against a source is computed by multiplying the source time factor from the master file (if none is given, 1.00 is assumed) by the action table factor (this is found during 830-ACTION-LOOKUP). The total time needed to complete this action is compared against the assigned staff member's personnel card (the correct staff member was previously found within 820-PERSONNEL-LOOKUP and the relative "address" saved in SUB-SCRIPT) week by week (in ascending order, 1 to 13) until a week is found for which he has sufficient time left to accomplish this action (time already scheduled plus time needed must be less than 30). The week must next be translated into a calendar date. This is accomplished by adding the week number within the personnel card (SUB-SCRIPT-1) to the week number (from control card); this "generated address" is used to select the correct month and day from the DATE-TABLE. The correct year (either current or current plus one) is picked up and the entire date is placed within the scheduled date field.

Both the basic and the advanced computerized system have a hierarchy of scheduling dates. This method is used to prevent any action from not being scheduled (and, therefore, not being printed on reports) because a date was not provided. It also enables the data bank coordinator to override any dates generated by the system.

1. The dummy date has the lowest priority. This is the run date plus one month (see Section 2.1 of the Appendix). This date will be used if step 2 and/or 3 (below) are not required.
2. The scheduled date is generated only within level 3. This date will replace the dummy date if the scheduling logic is utilized (Week number from control card is 01 to 52).
3. The manual date has the highest priority and will replace either the dummy date or scheduled date. This date enters the system from either the special action card or from the returned action card.

The last subroutine punches out a new personnel deck (paragraph named 910-PUNCH-SCHEDULE-CARDS). TOTAL-PERSONNEL-CARDS (counter used when creating the personnel table)is used to keep track of all personnel cards so that the number of output cards will equal the input cards.

4.2.2 Initializing COBOL Tables

The Enforcement Management System requires that certain local data be entered within the COBOL tables (see Tables 4.1 and 4.2) before the system can be implemented. Before any of the changes described below are made, Section 3.0 of the Appendix should be fully read and implemented.

The Next Action Table is used to pick up the next action code which will be used to schedule an action. The table contains three levels; the agency and current action code (AGENCY-ACTION); a delay factor (DELAY-SUBSCRIPT) for delaying the date next action can be scheduled; and the next action code (NEXT-ACTION-TB). Because each agency using the system could require a different next action (e.g. registration following inspection, etc.), the table is arranged in sequential order by agency and action code. The last entry should be agency 999 to stop the search.

The Date Table is used to pick up the month and day an action is to be performed. Since the schedule date represents a tentative date the action can be performed (on or before), this table need not be changed. If it is desirable to change this table (e.g. all actions to be scheduled on Fridays, etc.), all 52 entries must be changed. Each entry should be one week (7 days) apart. Entries should be made in ascending order.

```
4340 01  FILLER.                                                        TRC4288
4350     03 NEXT-ACTION-TABLE.                                          TRC4288
4360        05 FILLER   PICTURE 9(9) VALUE IS 001010102.                TRC4288
4370        05 FILLER   PICTURE 9(9) VALUE IS 001020103.                TRC4288
4380        05 FILLER   PICTURE 9(9) VALUE IS 001030104.                TRC4288
4390        05 FILLER   PICTURE 9(9) VALUE IS 001040505.                TRC4288
4400        05 FILLER   PICTURE 9(9) VALUE IS 001050106.                TRC4288
4410        05 FILLER   PICTURE 9(9) VALUE IS 001060107.                TRC4288
4420        05 FILLER   PICTURE 9(9) VALUE IS 001070108.                TRC4288
4430        05 FILLER   PICTURE 9(9) VALUE IS 001080103.                TRC4288
4440        05 FILLER   PICTURE 9(9) VALUE IS 001090101.                TRC4288
4450        05 FILLER   PICTURE 9(9) VALUE IS 999990197.                TRC4288
4460     03 RE-NEXT REDEFINES NEXT-ACTION-TABLE.                        TRC4288
4470        05 FILLER OCCURS 10 TIMES.                                  TRC4288
4480           07 AGENCY-ACTION     PICTURE 9(5).                       TRC4288
4490           07 DELAY-SUBSCRIPT   PICTURE 99.
4500           07 NEXT-ACTION-TB    PICTURE 99.                         TRC4288
```

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Table 4.1. Next action table.

```
4560 01  FILLER.                                                    TRC4288
4570     03 DATE-TABLE.                                             TRC4288
4580        05 FILLER            PICTURE 9(4) VALUE 0102.           TRC4288
4590        05 FILLER            PICTURE 9(4) VALUE 0109.           TRC4288
4600        05 FILLER            PICTURE 9(4) VALUE 0116.           TRC4288
4610        05 FILLER            PICTURE 9(4) VALUE 0123.           TRC4288
4620        05 FILLER            PICTURE 9(4) VALUE 0130.           TRC4288
4630        05 FILLER            PICTURE 9(4) VALUE 0206.           TRC4288
4640        05 FILLER            PICTURE 9(4) VALUE 0213.           TRC4288
4650        05 FILLER            PICTURE 9(4) VALUE 0220.           TRC4288
4660        05 FILLER            PICTURE 9(4) VALUE 0227.           TRC4288
4670        05 FILLER            PICTURE 9(4) VALUE 0306.           TRC4288
4680        05 FILLER            PICTURE 9(4) VALUE 0313.           TRC4288
4690        05 FILLER            PICTURE 9(4) VALUE 0320.           TRC4288
4700        05 FILLER            PICTURE 9(4) VALUE 0329.           TRC4288
4710        05 FILLER            PICTURE 9(4) VALUE 0403.           TRC4288
4720        05 FILLER            PICTURE 9(4) VALUE 0410.           TRC4288
4730        05 FILLER            PICTURE 9(4) VALUE 0417.           TRC4288
4740        05 FILLER            PICTURE 9(4) VALUE 0424.           TRC4288
4750        05 FILLER            PICTURE 9(4) VALUE 0501.           TRC4288
4760        05 FILLER            PICTURE 9(4) VALUE 0508.           TRC4288
4770        05 FILLER            PICTURE 9(4) VALUE 0515.           TRC4288
4780        05 FILLER            PICTURE 9(4) VALUE 0522.           TRC4288
4790        05 FILLER            PICTURE 9(4) VALUE 0529.           TRC4288
4800        05 FILLER            PICTURE 9(4) VALUE 0605.           TRC4288
4810        05 FILLER            PICTURE 9(4) VALUE 0612.           TRC4288
4820        05 FILLER            PICTURE 9(4) VALUE 0619.           TRC4288
4830        05 FILLER            PICTURE 9(4) VALUE 0626.           TRC4288
4840        05 FILLER            PICTURE 9(4) VALUE 0703.           TRC4288
4850        05 FILLER            PICTURE 9(4) VALUE 0710.           TRC4288
4860        05 FILLER            PICTURE 9(4) VALUE 0717.           TRC4288
4870        05 FILLER            PICTURE 9(4) VALUE 0724.           TRC4288
4880        05 FILLER            PICTURE 9(4) VALUE 0731.           TRC4288
4890        05 FILLER            PICTURE 9(4) VALUE 0807.           TRC4288
4900        05 FILLER            PICTURE 9(4) VALUE 0814.           TRC4288
4910        05 FILLER            PICTURE 9(4) VALUE 0821.           TRC4288
4920        05 FILLER            PICTURE 9(4) VALUE 0828.           TRC4288
4930        05 FILLER            PICTURE 9(4) VALUE 0904.           TRC4288
4940        05 FILLER            PICTURE 9(4) VALUE 0911.           TRC4288
4950        05 FILLER            PICTURE 9(4) VALUE 0918.           TRC4288
4960        05 FILLER            PICTURE 9(4) VALUE 0925.           TRC4288
4970        05 FILLER            PICTURE 9(4) VALUE 1002.           TRC4288
4980        05 FILLER            PICTURE 9(4) VALUE 1009.           TRC4288
4990        05 FILLER            PICTURE 9(4) VALUE 1016.           TRC4288
5000        05 FILLER            PICTURE 9(4) VALUE 1023.           TRC4288
5010        05 FILLER            PICTURE 9(4) VALUE 1030.           TRC4288
5020        05 FILLER            PICTURE 9(4) VALUE 1106.           TRC4288
5030        05 FILLER            PICTURE 9(4) VALUE 1113.           TRC4288
5040        05 FILLER            PICTURE 9(4) VALUE 1120.           TRC4288
5050        05 FILLER            PICTURE 9(4) VALUE 1127.           TRC4288
5060        05 FILLER            PICTURE 9(4) VALUE 1204.           TRC4288
5070        05 FILLER            PICTURE 9(4) VALUE 1211.           TRC4288
5080        05 FILLER            PICTURE 9(4) VALUE 1218.           TRC4288
5090        05 FILLER            PICTURE 9(4) VALUE 1225.           TRC4288
5100     03 RE-DATE-TABLE REDEFINES DATE-TABLE.                     TRC4288
5110        05 TABLE-MONTH-DAY   PICTURE 9(4) OCCURS 52 TIMES.      TRC4288
```

Table 4.2. Date table.

5.0 MANUAL SYSTEM

5.1 General Description

Some agencies may find it impractical to install either of the computerized systems described in the preceding sections. A manual version of the Enforcement Management System has been designed and is presented in the following pages. It is strongly urged, however, that every effort be made to utilize the mechanized system, since the manual system does not provide all the benefits available with the mechanized system. Valid reasons for installation of the manual system include:

- Non-availability of computer time.
- Lack of any qualified assistance to provide programming maintenance for the computerized system.
- Turn-around time so slow at the only available computer facility that use for this application is not feasible at this time.
- A situation in which the agency has less than ten employees and does not work closely with another air pollution agency with whom the system can be shared

If the situation changes, making computerization possible, conversion from the manual system will be readily accomplished. The design of the manual system is similar to that of the mechanized systems. The data base will be organized in suitable fashion for conversion to automated processing.

The manual system utilizes the same action card concept as the automated systems. The "card," however, is changed to an 8-1/2 x 11-inch sheet for easy filing, and is printed in copy sets for easy handling. The individual source-oriented inputs are prepared manually and maintained in a file book, one book per source. Operational schedules are prepared for individual staff members, and for organizational groups. Some management summaries are produced. The source-oriented files should represent an improvement over most presently-maintained systems.

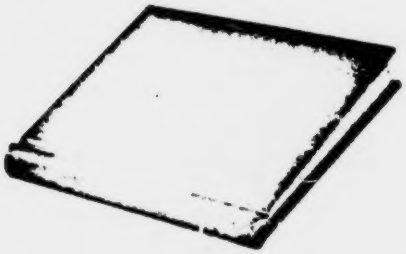
Costs of the system are lower in the manual version, although certain expenses for forms and filing devices are required. The manual system requires more vigorous management support to enable it to operate successfully. Manual systems require a more experienced and/or qualified data bank coordinator than computer systems do, because the follow-up aspects of the system are not automatic.

5.2 System Description

The system is best described in terms of its operation. As an example, assume an agency becomes aware of an unregistered source. The data bank coordinator (DBC) is advised and sets up a file for the source. These files are not ordinary file folders, but heavy-duty "sheet holders." A sheet holder is a holder with a heavy-weight board cover, rounded back, steel spring clips, and an inner folder to facilitate insertion or removal of inserts. It holds pages up to 1 inch in thickness in a secure fashion, and yet permits easy additions of pages at any point in the file (See Figure 5.1). Looseleaf notebooks may also be used, but the sheet holder is preferred, because it is more compact and capable of accepting unpunched sheets.

The source file book is set up with a number of standard sections, delineated by pages with index tabs. The sections are:

- Registration Data
- Current correspondence



Commercially available sheet holder

Files	Forms
Source File Books	Action Sheet Set
Individual Schedule Books	Emission Point Sheet
Section Schedule Books	Company Data Sheet
Suspense File	Overdue Action Form
	Action Summary Form
	Standard Letters
	Source File Book Charge Out Sheet

Figure 5.1. System files and recommended sheet holder.

- Past correspondence
- Emission point sections
- Cross references

This file is needed in any case, even with the computerized system, but assumes vital importance with the manual system.

The sections are set up at once, and index tab divider sets are prepared in advance so they can be "dropped in" as required. These emission point sections are included in each set, labled E-Point #1, #2 and #3. These are for specific pollution emission activities at that source location. There may be more or less than three emission points for any given source. The number of sections can be adjusted to reflect the proper numbers. When data are available, an index sheet is inserted in the Registration Data section, indicating the emission point numbers assigned and the process related to each at the source location. For example, E-point #1 might be a boiler, E-point #2, a manufacturing process, and E-point #3, waste disposal. Figure 5.2 shows an example of an emission point form, which can be varied to reflect local usage.

Figure 5.3 shows an example of a company data sheet, which is placed in the registration data section of the book.

The source file book is vital to the agency's operation. Many staff members will need to refer to the individual books, and may need to remove them from the DBC's files. So that the books do not become lost, or misplaced for extended periods, it is recommended that a charge out system be used. A charge out sheet format is shown in Figure 5.4. If a staff member borrows a book, he fills out and leaves a charge out slip with the DBC, who

AGENCY TITLE

EMISSION POINT DATA SHEET

☐ Emission Pt. No. ______________________ Source Name

Description of Emission Point

____

____

____

______________________ Registration No.

______________________ Permit No.

Fuel or Input Material ______________________

Annual Quantity ______________________

Pollutant Emissions Type and Quantity ______________________

____

____

____

Control Device ______________________

____

____

Condition ______________________

Efficiency (Show pollutant and percentage) ______________________

Operational pattern: Hours per day______________________

Days per week______________________

Seasonal variation ______________________

Figure 5.2. Emission point data sheet.

AGENCY NAME

COMPANY DATA SHEET

Source No. ____________

____
Name of Company

____
Street Address at Emission Source

____ ____________
City Zip Code

________________________ ____________________
Area Code County
Telephone

SIC Code __________ ______________________________
Person to Contact at this Address

Grid Coordinates UTM Zone _______ EW __________ by NS __________

Description of Operation
st this Address ______________________________

____

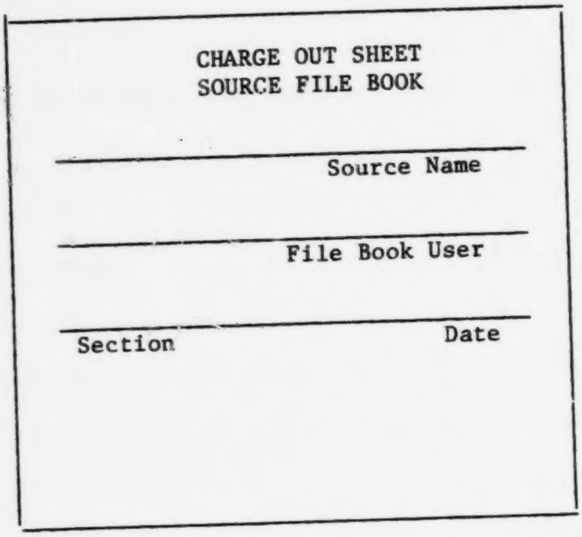
____

____

Emission Points (use extra sheet if needed.)

1. ______________________	5. ______________________
2. ______________________	6. ______________________
3. ______________________	7. ______________________
4. ______________________	8. ______________________

Figure 5.3. Company data sheet.



CHARGE OUT SHEET
SOURCE FILE BOOK

____
Source Name

____
File Book User

____
Section Date

Figure 5.4. Charge out sheet.

monitors the length of time the books are retained by the various staff members.

For the example of the unregistered source, the data bank coordinator sets up the source file book, and puts in the company data sheet indicating what information is known about the source. The DBC then fills in an action form, a sample of which is shown in Figure 5.5 through 5.9. This is a five-part carbon form with each sheet in the set a different color. The five parts are as follows:

- o Action Copy (white)
- o Source File Copy (blue)
- o Suspense Copy (yellow)
- o Individual Schedule Copy (pink)
- o Section Schedule Copy (green)

The form can be printed on pressure sensitive paper, which will reduce the bulk of the form set. Figure 5.10 shows the distribution of the various copies of the form. The action copy is sent to the staff member (in this case a girl in the clerical section) who will actually perform the action. Her schedule book is also updated with the individual schedule copy. The source copy is entered in the source file books. The section schedule copy is filed in the Section Schedule Book, which is available to the Section Head, and agency management at all levels. The data bank coordinator retains the suspense copy in the suspense file.

Several files were mentioned which have not been described. The suspense file consists of one or more sheet holders which serve as temporary locations for the suspense copy of the action sheet sets. They hold a number of

ACTION
SHEET
ENFORCEMENT
MANAGEMENT
SYSTEM

ACTION
COPY

Source Name

Address

City

Telephone

Action

☐☐ Emission Pt. No.

Send Letter ☐☐ to Source

Scheduled Date

Est. Hrs. to Complete

Today's Date

Staff Member

Section

Action Results

Next Action

Staff Member

Section

Estimated Hrs. to Complete

Comments

ACTIONS

- Inspection
- Registration
- Plan Submission
- Review with Source
- Registration Review
- Plan Review
- Source Testing
- A. Q. Survey
- Complaint Received
- Other -- see Comments

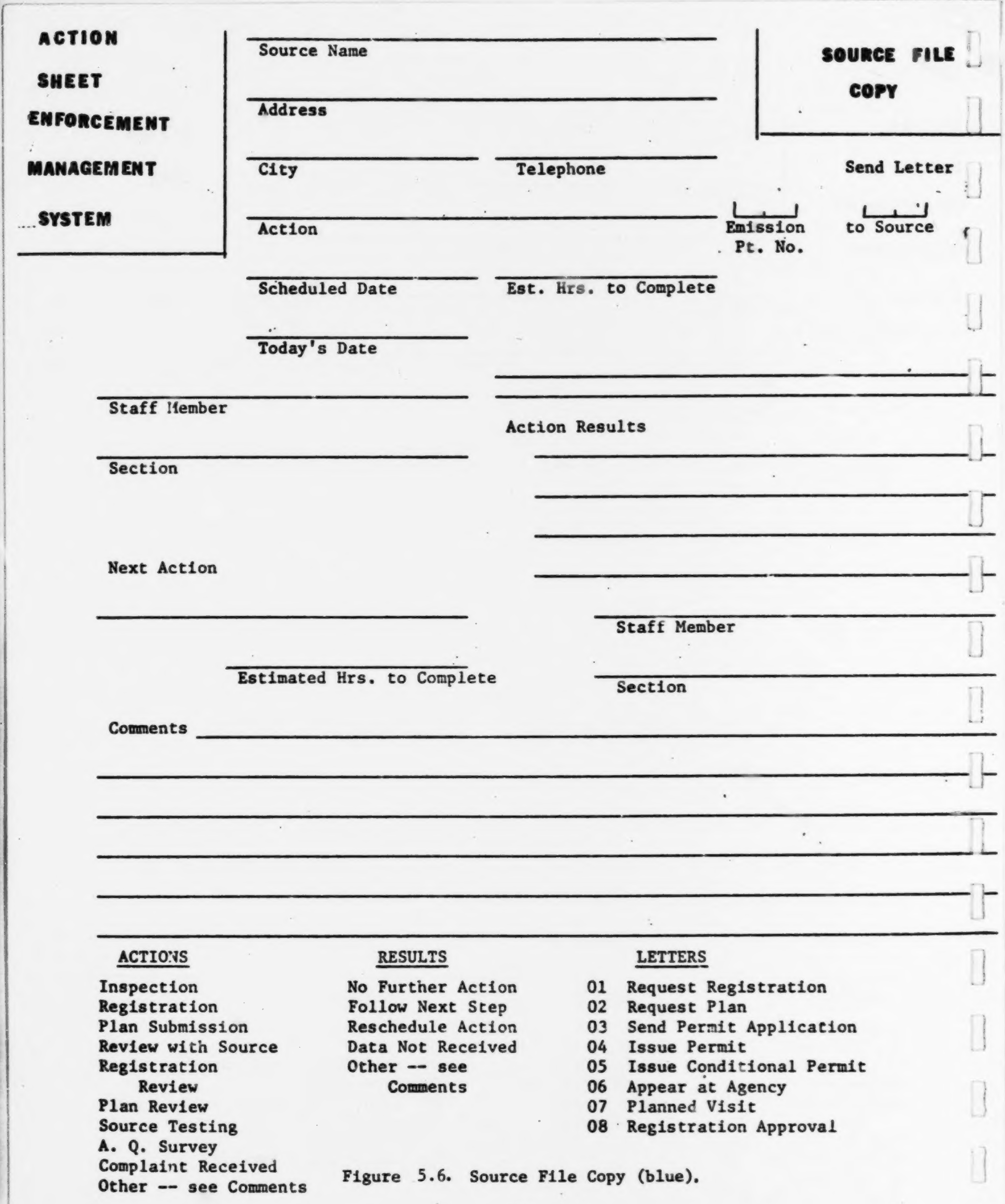
RESULTS

- No Further Action
- Follow Next Step
- Reschedule Action
- Data Not Received
- Other -- see Comments

LETTERS

01 Request Registration
02 Request Plan
03 Send Permit Application
04 Issue Permit
05 Issue Conditional Permit
06 Appear at Agency
07 Planned Visit
08 Registration Approval

Figure 5.5. Action Copy (white).



ACTION SHEET ENFORCEMENT MANAGEMENT SYSTEM

SOURCE FILE COPY

Source Name

Address

City

Telephone

Action

Emission Pt. No.

Send Letter to Source

Scheduled Date

Est. Hrs. to Complete

Today's Date

Staff Member

Section

Action Results

Next Action

Staff Member

Estimated Hrs. to Complete

Section

Comments

ACTIONS	RESULTS	LETTERS
Inspection	No Further Action	01 Request Registration
Registration	Follow Next Step	02 Request Plan
Plan Submission	Reschedule Action	03 Send Permit Application
Review with Source	Data Not Received	04 Issue Permit
Registration Review	Other -- see Comments	05 Issue Conditional Permit
Plan Review		06 Appear at Agency
Source Testing		07 Planned Visit
A. Q. Survey		08 Registration Approval
Complaint Received		
Other -- see Comments		

Figure 5.6. Source File Copy (blue).

ACTION
SHEET
ENFORCEMENT
MANAGEMENT
SYSTEM

SUSPENSE
COPY

Source Name

Address

City
Telephone

Send Letter

Action

Emission Pt. No.

to Source

Scheduled Date
Est. Hrs. to Complete

Today's Date

Staff Member

Section

Action Results

Next Action

Staff Member

Estimated Hrs. to Complete

Section

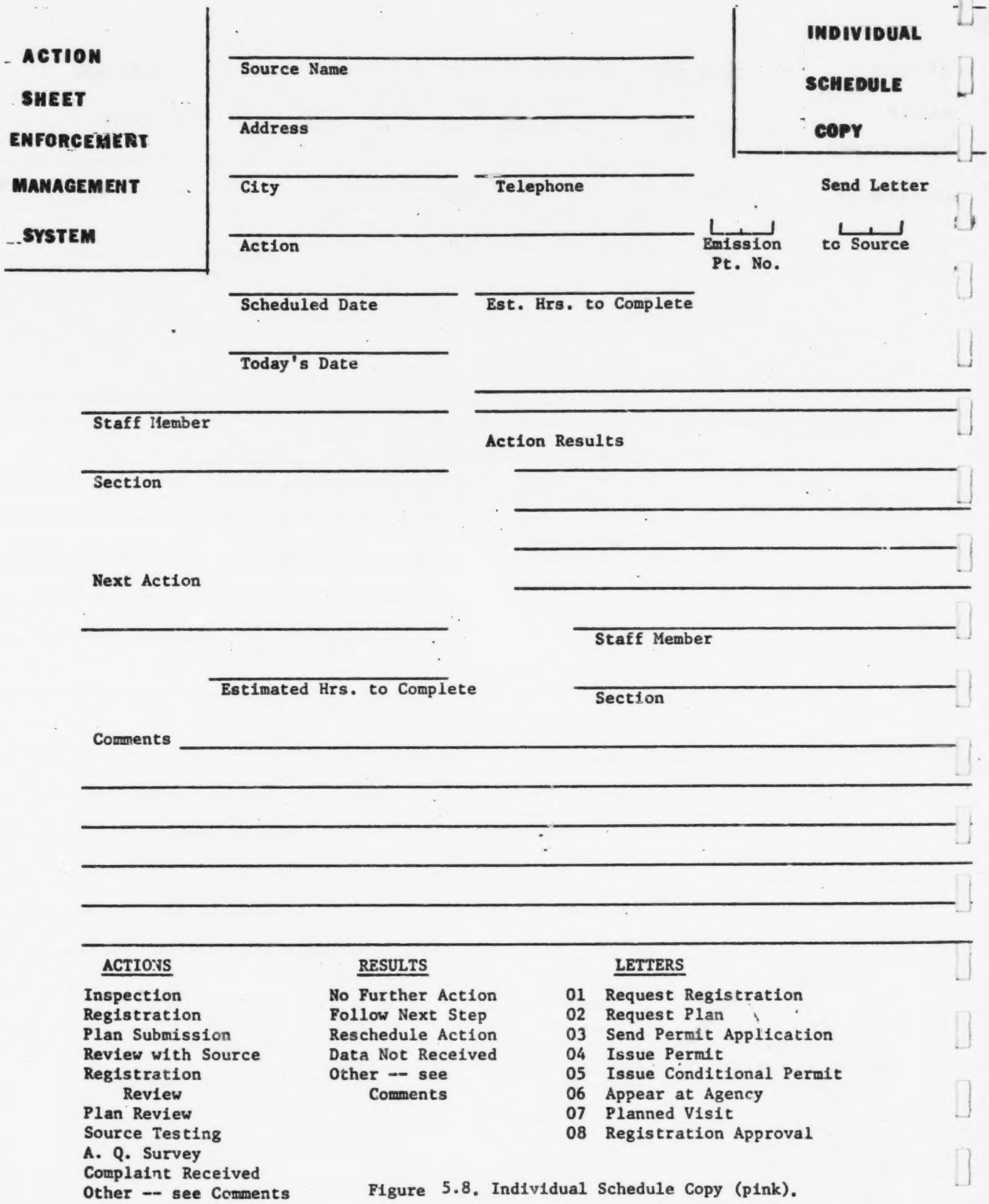
Comments

ACTIONS
- Inspection
- Registration
- Plan Submission
- Review with Source
- Registration Review
- Plan Review
- Source Testing
- A. Q. Survey
- Complaint Received
- Other -- see Comments

RESULTS
- No Further Action
- Follow Next Step
- Reschedule Action
- Data Not Received
- Other -- see Comments

LETTERS
01 Request Registration
02 Request Plan
03 Send Permit Application
04 Issue Permit
05 Issue Conditional Permit
06 Appear at Agency
07 Planned Visit
08 Registration Approval

Section 5.7, Suspense Copy (yellow).



ACTION SHEET
ENFORCEMENT MANAGEMENT SYSTEM

INDIVIDUAL SCHEDULE COPY

Source Name

Address

City

Telephone

Action

Emission Pt. No.

Send Letter to Source

Scheduled Date

Est. Hrs. to Complete

Today's Date

Staff Member

Section

Action Results

Next Action

Staff Member

Section

Estimated Hrs. to Complete

Comments

ACTIONS

- Inspection
- Registration
- Plan Submission
- Review with Source
- Registration Review
- Plan Review
- Source Testing
- A. Q. Survey
- Complaint Received
- Other -- see Comments

RESULTS

- No Further Action
- Follow Next Step
- Reschedule Action
- Data Not Received
- Other -- see Comments

LETTERS

01	Request Registration
02	Request Plan
03	Send Permit Application
04	Issue Permit
05	Issue Conditional Permit
06	Appear at Agency
07	Planned Visit
08	Registration Approval

Figure 5.8. Individual Schedule Copy (pink).

ACTION
SHEET
ENFORCEMENT
MANAGEMENT
SYSTEM

SECTION
SCHEDULE
COPY

Source Name

Address

City

Telephone

Action

Emission Pt. No. └─┴─┘

Send Letter to Source └─┴─┘

Scheduled Date

Est. Hrs. to Complete

Today's Date

Staff Member

Section

Action Results

Next Action

Staff Member

Estimated Hrs. to Complete

Section

Comments

ACTIONS
- Inspection
- Registration
- Plan Submission
- Review with Source
- Registration Review
- Plan Review
- Source Testing
- A. Q. Survey
- Complaint Received
- Other -- see Comments

RESULTS
- No Further Action
- Follow Next Step
- Reschedule Action
- Data Not Received
- Other -- see Comments

LETTERS
- 01 Request Registration
- 02 Request Plan
- 03 Send Permit Application
- 04 Issue Permit
- 05 Issue Conditional Permit
- 06 Appear at Agency
- 07 Planned Visit
- 08 Registration Approval

Figure 5.9. Section Schedule Copy (green).

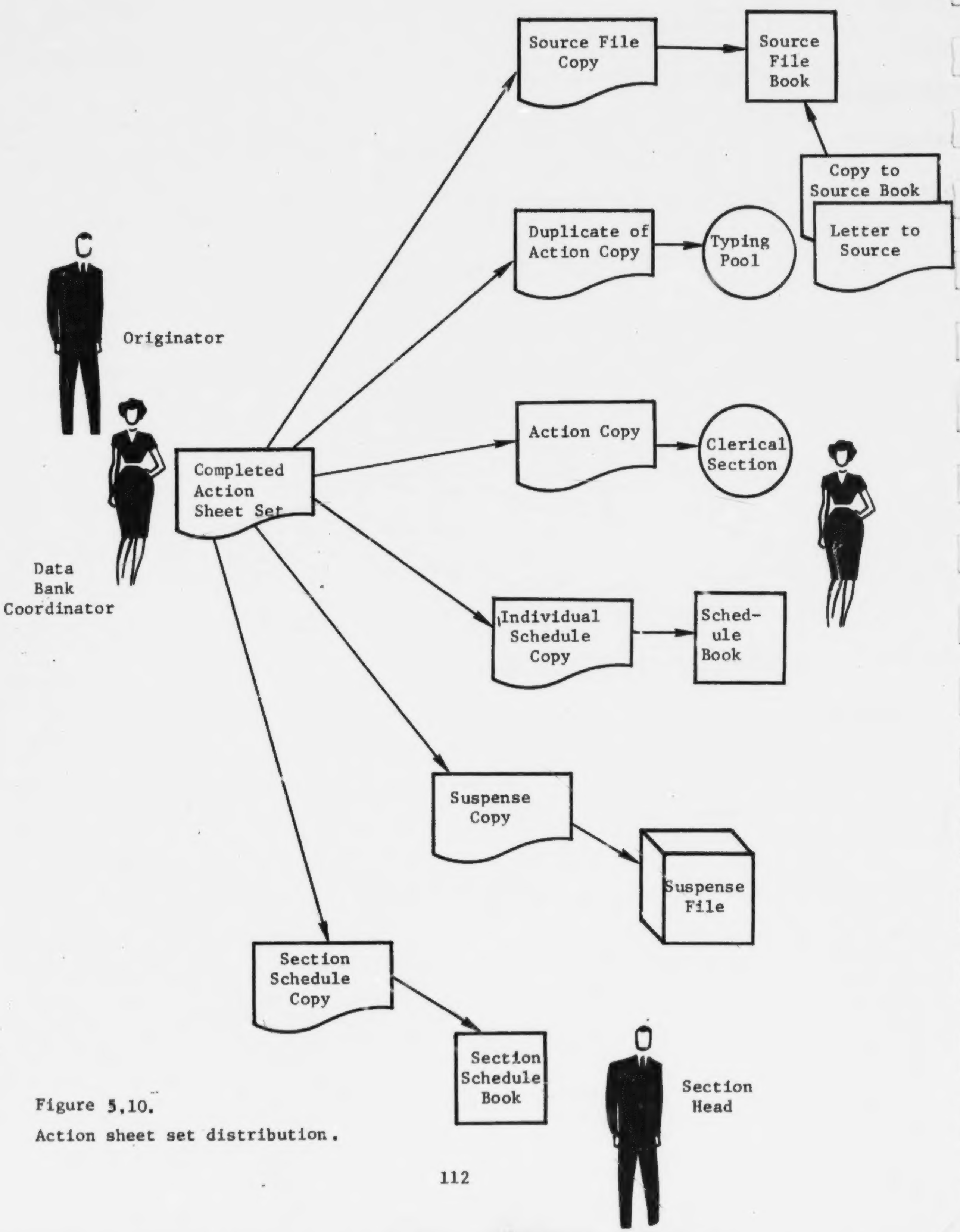

Originator
Data
Bank
Coordinator
Completed
Action
Sheet Set
Source File
Copy
Source
File
Book
Copy to
Source Book
Letter to
Source
Duplicate of
Action Copy
Typing
Pool
Action Copy
Clerical
Section
Individual
Schedule
Copy
Sched-
ule
Book
Suspense
Copy
Suspense
File
Section
Schedule
Copy
Section
Schedule
Book
Section
Head

Figure 5.10.

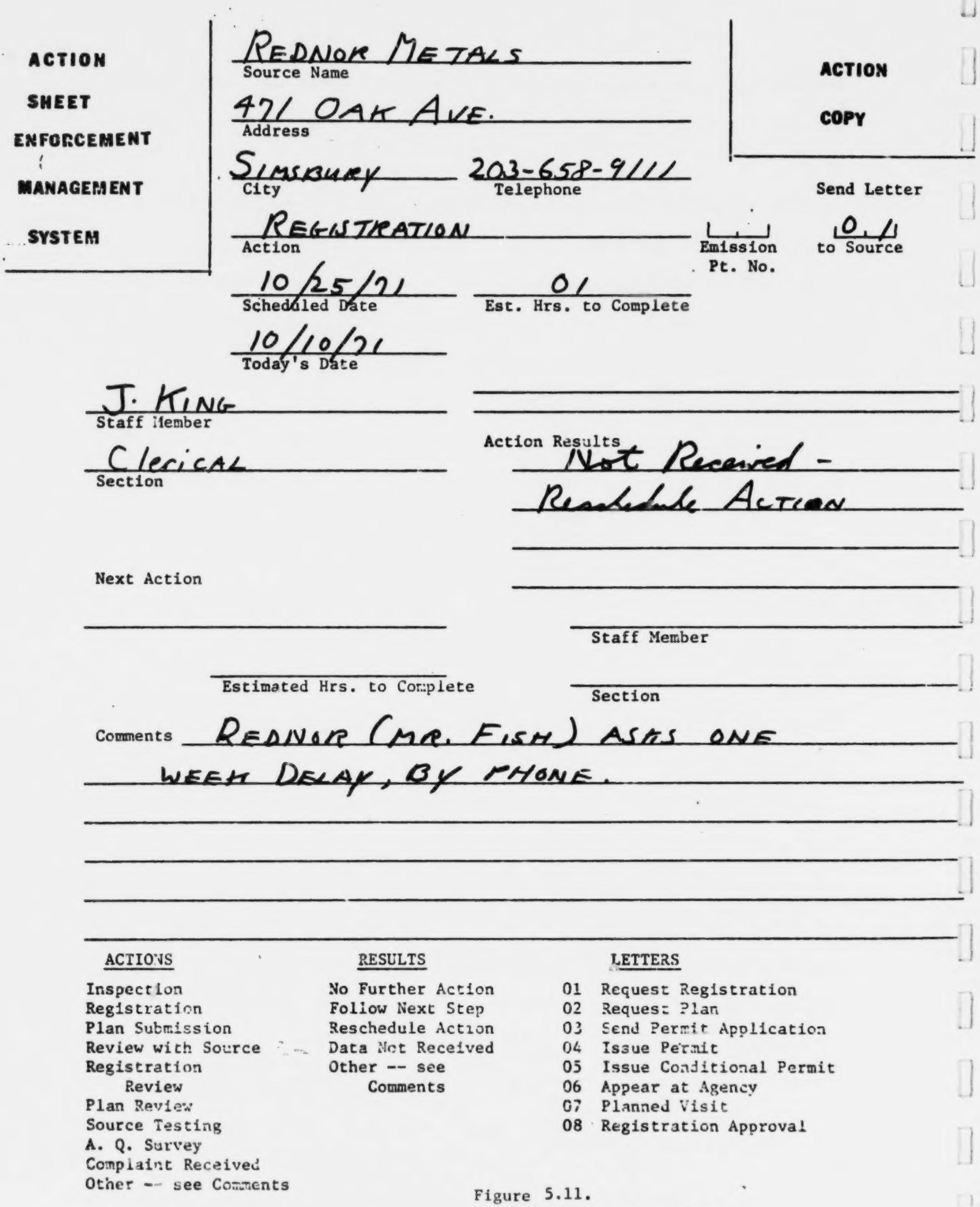
Action sheet set distribution.

dividers which are tagged by month for the 12 months of the year. The suspense copies are filed in sequence of schedule date under the proper month.

The individual schedule books and the section books are similar. There is one schedule book for each individual. The pink schedule copy is entered in the schedule book of the individual who will perform the action. The green section copy goes in the Section Book. The updating of the schedule books is done by the data bank coordinator, who has regular access to these books.

The question of who performs what function is a significant one. Individual agency practice will differ, based on personnel available, workload, and other factors. The action sheet set may have been completely filled out by the originator of the data, or he may have relied on the data bank coordinator for assistance. For a registration request to a source the data bank coordinator would probably know just how to proceed. In other cases, she might have to refer the matter to a section head or other administrator for guidance concerning who should handle a particular action or what the next step should be.

The source may respond to the request for registration within a reasonable time, or it may not. A reasonable time is defined as the scheduled date established at the time the Action Set was filled out. The clerical section has the Action Copy, and should return it if the registration is not received. Figure 5.11 shows this action copy as it is returned to the data bank coordinator, including the additional correspondence from the clerical section.



ACTION SHEET ENFORCEMENT MANAGEMENT SYSTEM

ACTION COPY

REDNOR METALS
Source Name

471 OAK AVE.
Address

SIMSBURY
City

203-658-9111
Telephone

REGISTRATION
Action

Emission Pt. No.

0 1
Send Letter to Source

10/25/71
Scheduled Date

01
Est. Hrs. to Complete

10/10/71
Today's Date

J. KING
Staff Member

Clerical
Section

Action Results
Not Received -
Reschedule Action

Next Action

Estimated Hrs. to Complete

Staff Member

Section

Comments REDNOR (MR. FISH) ASKS ONE WEEK DELAY, BY PHONE.

ACTIONS

Inspection
Registration
Plan Submission
Review with Source
Registration Review
Plan Review
Source Testing
A. Q. Survey
Complaint Received
Other -- see Comments

RESULTS

No Further Action
Follow Next Step
Reschedule Action
Data Not Received
Other -- see Comments

LETTERS

01 Request Registration
02 Request Plan
03 Send Permit Application
04 Issue Permit
05 Issue Conditional Permit
06 Appear at Agency
07 Planned Visit
08 Registration Approval

Figure 5.11. Filled in action sheet.

If the source responds by sending in the registration, the Action Copy is returned and filled in as shown in Figure 5.12. The following actions then take place:

- o A next action is scheduled on the form and assigned to a staff member as indicated.
- o The data bank coordinator matches the Suspense Copy (in the Suspense file) with the returned Action Copy, and discards the Suspense Copy.
- o The data bank coordinator enters the scheduled action on the Action Summary Form.
- o The DBC matches the Source File Copy in the Source File Book with the returned Action Copy, and updates it with the Action Copy.
- o The DBC fills out a new Action Sheet Set.
- o The copies of the Action Sheet Set are distributed, as before.

In the case of the new Action Sheet Set, an engineer has been assigned to review the registration form. If the review indicates control action is needed, he will probably schedule a "review with source." Every action goes through the same cycle. For instance, in the example we have discussed, these steps might be followed:

- o Review with source
- o Submission of compliance plan by source
- o Review of plan by agency
- o Issue conditional permit
- o Inspection
- o Issue permit
- o Inspection (future)

Each action is tracked and monitored by way of the Action Sheet Set, and the associated processing.

ACTION
SHEET
ENFORCEMENT
MANAGEMENT
SYSTEM

ACTION
COPY

Source Name: REDNOR METALS

Address: 471 OAK AVE.

City: SIMSBURY

Telephone: 203-658-9111

Action: REGISTRATION

Emission Pt. No.:

Send Letter to Source: 01

Scheduled Date: 10/25/71

Est. Hrs. to Complete: 01

Today's Date: 10/10/71

Staff Member: J. KING

Section: Clerical

Action Results: Registration Rec'd
Follow Next Step

Next Action: REGISTRATION REVIEW

Estimated Hrs. to Complete: 04

Staff Member: N. BOWNE

Section: ENGINEERING

Comments

ACTIONS

Inspection
Registration
Plan Submission
Review with Source
Registration Review
Plan Review
Source Testing
A. Q. Survey
Complaint Received
Other -- see Comments

RESULTS

No Further Action
Follow Next Step
Reschedule Action
Data Not Received
Other -- see Comments

LETTERS

01 Request Registration
02 Request Plan
03 Send Permit Application
04 Issue Permit
05 Issue Conditional Permit
06 Appear at Agency
07 Planned Visit
08 Registration Approval

Figure 5.12.
Filled in action sheet.

On a regular basis, the data bank coordinator prepares various forms and reports to summarize agency activities. The action summary report (Form shown in Figure 5.13) is prepared for each section periodically and records all actions for the individual section. The reports are also reproduced and made available to the agency director, who may make further distribution after review. The Action summary report is prepared entry-by-entry as actions are completed and the returned action copy passes the desk of the data bank coordinator.

The overdue action report format is shown in Figure 5.14. This report is prepared by the data bank coordinator on a periodic basis; it is recommended that this interval be biweekly. The report is prepared by reviewing the suspense book maintained by the DBC. Any action which has passed its scheduled date is listed. Note that a rescheduled action is not listed on the report. However, a new action sheet set is required to reschedule an action. The report is reproduced, copies are sent to the agency director, and individual pages are sent to section heads responsible for specific activities.

5.3 Data Bank Coordinator

The position of data bank coordinator is a very significant one to the success of the manual Enforcement Management System. For all but the smallest agencies, we recommend that this position be full-time. This is not a net addition to staff, since the system functions that will be performed by the coordinator replace existing functions that would have been performed in any case.

AGENCY TITLE

ACTION SUMMARY

Section

Period Covered

Date of Report

Staff Member Title	Source Name	Action Result	Date of Action	Next Action Date

Figure 5.13. Action summary report.

AGENCY TITLE

OVERDUE ACTION REPORT

Section

Period Covered

Date of Report

Scheduled Date	Planned Action	Company Name	Staff Member	Title

Figure 5.14. Overdue action report.

The coordinator's qualifications should be as follows:

- Relatively experienced in air pollution control agency office procedures. Experienced in dealing with people at all levels.
- High school graduate with some college or equivalent training.
- In a small agency, typing and general secretarial abilities are also required.

The exact functions of the data bank coordinator will vary with agency size and practice. In the smaller agency, the coordinator may perform his own typing task and do considerable file update. In the larger agency this will be done by others. Generally speaking, however, we strongly recommend that this individual not be assigned tasks, (such as routine correspondence,) which are unrelated to operation of the Enforcement Management System.

The functions to be performed by the data bank coordinator will vary as indicated above. In general they are as follows:

- Provide training for new staff members and others in the use of the Enforcement Management System.
- Maintain the source file books and control their use by staff members.
- Maintain the suspense file containing the suspense copies of the action sheet sets
- Prepare and distribute overdue action reports.
- Provide assistance to all staff members in filling out Action Sheet Sets. Fill out these forms where appropriate without assistance from other staff members.
- Review workloads with section heads, working with the schedule book. This involves making available the workload assigned (via a review of the Section's Schedule copies of the action sheets). This interaction with the Section Heads should provide a clearer picture of the existing and future workloads so that these section heads can make informed management decisions in the operation of their sections. The time periods assigned to actions that are being scheduled will be assigned during the review.

5.4 System Support

Operation of the manual version of the system will vary from agency to agency. In some cases only portions of the system will be utilized based on local considerations. Figure 5.15 indicates the general relationship of the system operation within the agency and with pollution sources.

The performance of data bank coordinator is a very significant factor in the degree of success the system will achieve within any particular agency. His relationship with the various technical staff and the support he receives from management are key factors. A backup coordinator should be designated since vacation or illness would remove the DBC from the scene from time to time. This person should be trained with the coordinator so that the system continues to function during absences.

The section head must actively support the system to achieve benefits from it. The operation of the system provides a means for an individual section head to improve management of his group. If an individual section head is not utilizing the system or feels it is not providing any advantage to him or to his people, investigation should be made by the agency director to make sure that proper usage is being made of the system features. Some smaller sections headed by individuals who prefer to operate on an ad-hoc basis may never derive substantial benefits. However, it is worthwhile to include even these small sections in the system so that the source files will contain compatible information about their interactions with the individual sources.

The highest levels of agency management must believe in and support the system if it is to succeed. Periodically the progress and results should be reviewed with the Section Heads. When reports are produced, such as the

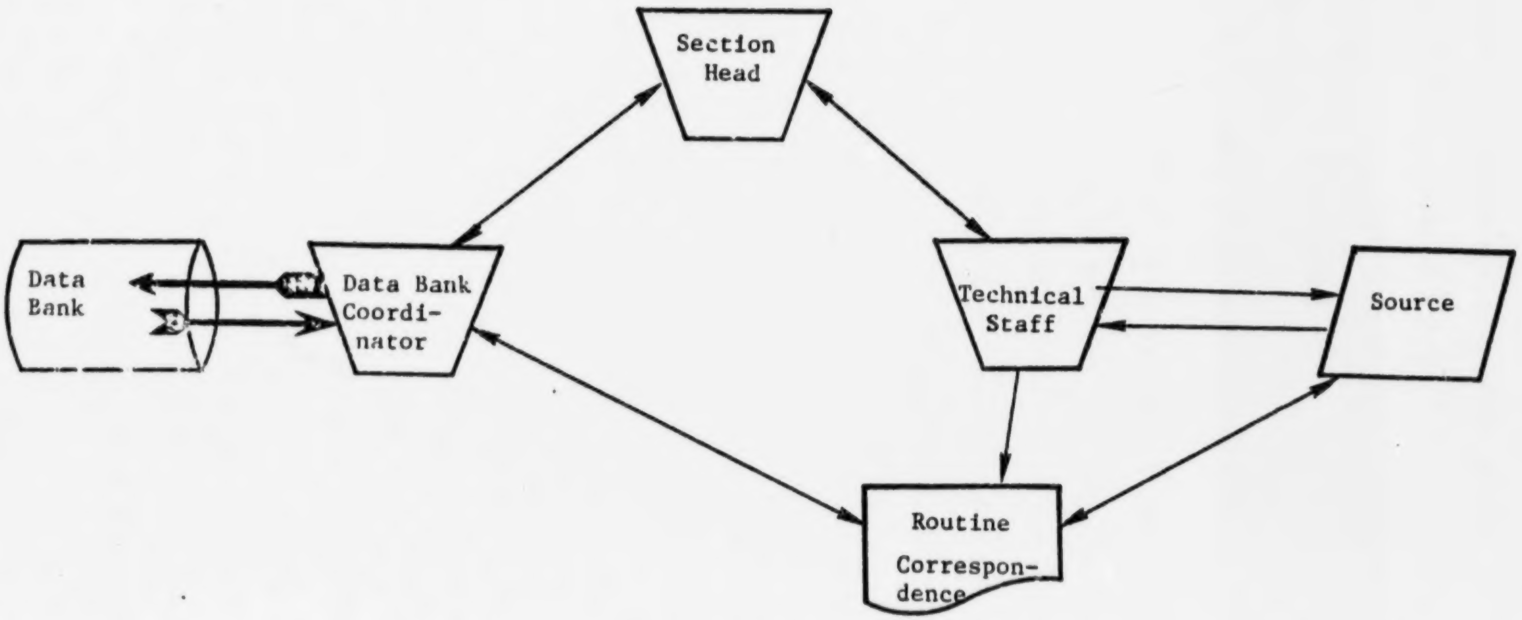

Section
Head
Data
Bank
Data Bank
Coordi-
nator
Technical
Staff
Source
Routine
Correspon-
dence

Figure 5.15. Generalized system operation.

Overdue action report, or the action summary, the director should make it a special point to refer to them, to ask questions about them and to utilize them as official documents of the agency. In this way, various staff personnel will become familiar with these reports.

5.5 Start Up

Startup for the manual version of the Enforcement Management System is somewhat easier than that for the computerized versions. The milestone chart in Figure 5.16 indicates the basic steps that should be followed in beginning the operation. The following paragraphs describe each of 11 generalized steps which when followed in sequence should bring an agency to operational readiness in the use of the manual Enforcement Management System.

1. Adjust forms to local practice. The design of the forms may evolve within an agency and vary from agency to agency. In particular the Action Sheet will require modification to reflect local practice. Actions, results and letters (to be sent out) will vary based on local regulations. The local director and his staff should review agency operations and select the actions and letters that seem most appropriate to their own particular operation.
2. Obtain forms and other supplies. This activity involves ordering the printing of the seven forms and obtaining other supplies necessary for system operation. Figure 5-1 indicates the necessary items. The files are designed to utilize sheet holders described in an earlier section. Three ring binders can be substituted, but we feel that the sheet holders make updating of the file easier and avoid punching

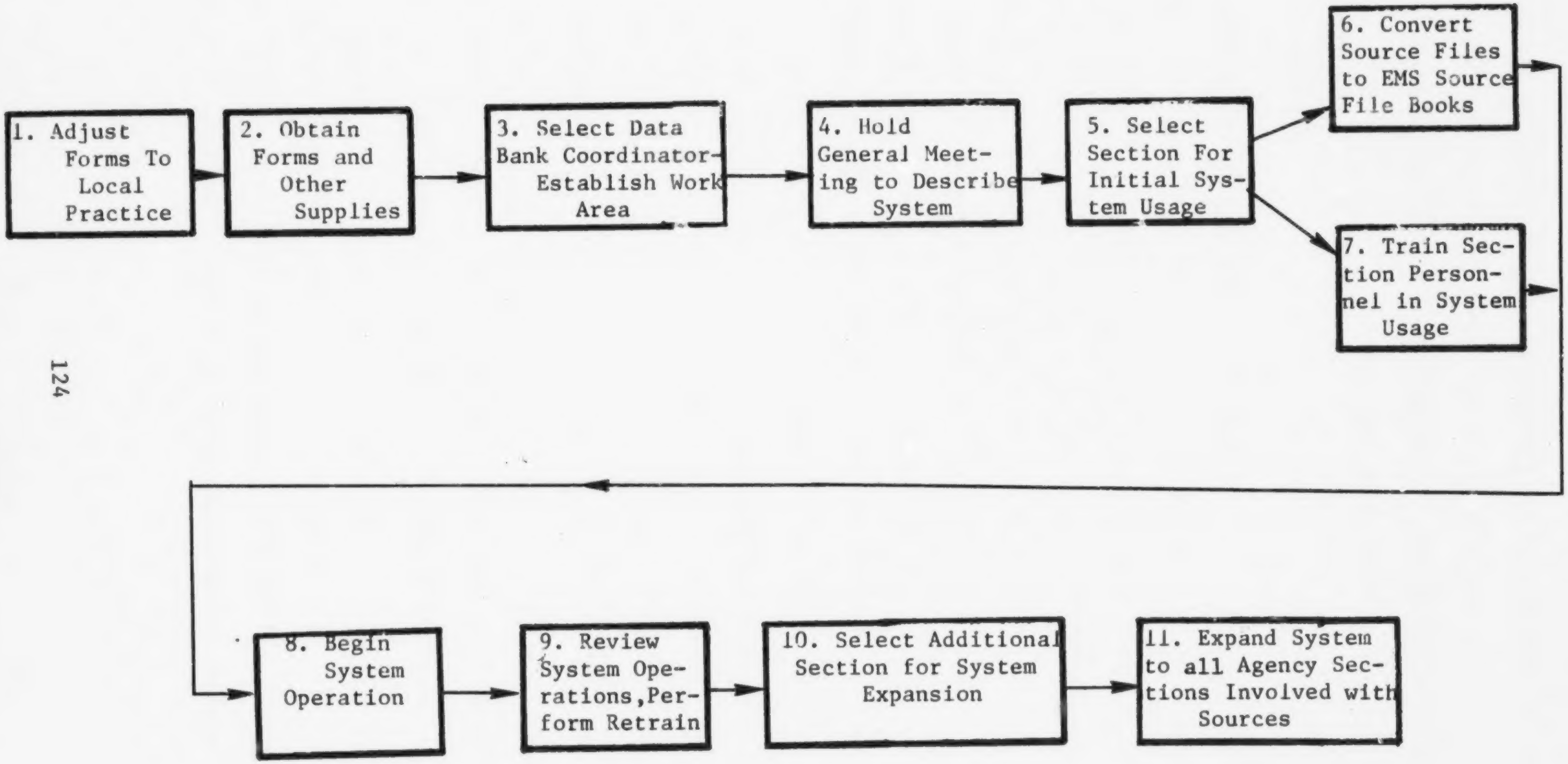

1. Adjust Forms To Local Practice
2. Obtain Forms and Other Supplies
3. Select Data Bank Coordinator-Establish Work Area
4. Hold General Meeting to Describe System
5. Select Section For Initial System Usage
6. Convert Source Files to EMS Source File Books
7. Train Section Personnel in System Usage
8. Begin System Operation
9. Review System Operations, Perform Retrain
10. Select Additional Section for System Expansion
11. Expand System to all Agency Sections Involved with Sources

Figure 5.16. Manual system start-up.

holes in the various forms. Many of the forms can be produced using simple xerographic or multilith techniques. The Action Sheets Sets, however, should be sent to a printer once the final format has been agreed upon.

3. Select data bank coordinator and establish work area. The requirements for the person who is to become the data bank coordinator are discussed above. It is important to establish an appropriate work area for the coordinator. The work area should be centrally located with adequate filing space for a sheet holder for each major source contacted by the agency. The files which hold the Source File Books should have locks for security purposes. The central location of the coordinator's work area encourages coordination and discussion of problems with the various staff personnel of the agency. In addition, the Source File Books should be readily accessible to agency personnel.
4. Hold general meeting to describe system. An agencywide meeting should be held to describe the system and discuss the results that are expected from it. The system should be presented in a positive fashion, as an aid to reducing confusion and improving control of activities. The system benefit of better availability of information should be emphasized.
5. Select section for initial system usage. We recommend that the system be installed in easy stages. Operations can begin with a single section, preferably one of the engineering sections (if there are more than one). A section should be selected on the basis of its need for a system of this type, to ease data handling and retrieval problems.

6. Convert Source Files to EMS Source File Books. This involves gathering the source related material relating to the sources by the personnel of the selected section and converting it to the Enforcement Management System source file book format. For existing sources this will mean taking the data and extracting the needed information from the company data sheets and emission point sheets. The data are entered on the index sheet and included in the registration data section. The company data sheets are then filed with the other material in the sheet holders which make up the source file books.

7. Train section personnel in system usage. The data bank coordinator trains the personnel of the section selected for the initial application in the operation of the system. This initial session should last from 1 to 2 hours and should involve actual examples of how to fill out the action sheets. The various schedules should be explained and the availability of the schedule books should be emphasized.

8. Begin system operation. Operation is begun by filling out action sheets for the activity schedule for the next week. This can be done at the end of the training session for some actions; the remaining actions can be filled out later.

9. Review system operation, perform retraining. The operation of the system should be reviewed after implementation. Any necessary retraining should be performed and problems should be resolved. The details of system operation should be discussed. During these sessions, communication should be emphasized. For example, in

filling out a new Action Sheet an inspector may be unable to establish a schedule date for the next action. It may be that this type of problem requires coordinating the action sheet set with another staff member before it is handed in to the data bank coordinator.

10. Select additional sections for system expansion. The remaining engineering sections can be brought into the system. Sections whose work relates to engineering (source inventory, source monitoring) are added with time. In this way, the system will encompass a continually expanding portion of the agency operation.

11. Expand system to all agency sections. Since the entire agency should eventually be included in the system operation. Staff members dealing primarily with air quality measurements should be included to provide input from those activities which involve specific sources.

6.0 ALERT HANDLING

The computerized Enforcement Management System is designed to facilitate the activities to be accomplished during an air pollution episode or alert. Emission reduction plans are formulated in advance with the source operators. The plans require specific actions to be taken by various people in the agency to ascertain the stage of the alert to intiate required responses. These activities fall into two general categories:

- Actions related to specific emission sources, such as surveillance of operational shutdown or reduction in emissions during an alert.
- Actions unrelated to emission sources but concerned with activities such as issuance of news releases, contact with public officials, special air quality monitoring assignments.

Handling of actions related to specific emission sources involves the creation of an action record (using the manual action card form) on the master file. This action appears on the individual and group future schedule summaries. It is specially coded to indicate that the action is only to be performed during an alert. This is done by scheduling the action for a date in the 1990's. The comments entered with the action also specify that it is associated with an alert. There are different activities associated with each level of alert. These actions are assigned to different years in the 1990's. Examples are to code Forecast as 1995; Alert as 1996; Warning as 1997; Emergency as 1998; and All Clear as 1999. The various actions can be added to the system at different times as compliance agreements are negotiated with various emission sources. The planned actions for that source become a part of the emissions reduction activity. Similarly, source actions are updated by changes or deletions of specific activities.

Alert actions not associated with any specific source require different handling. This consists of entering a special source into the system files to provide a basic record for area-wide alert actions. All actions for a given area are entered under this source number which then appears on the appropriate schedules, with the title "Alert Center" in the source name field. This entry should be made using the normal forms.

Assignment of alert actions may vary from one agency to another. In some cases, the actions may be assigned to specific staff members. Other agencies may prefer to assign the actions to a title, such as "senior alert officer." In this case, the "senior alert officer" should be assigned a spot in the personnel deck, and carried as a staff member.

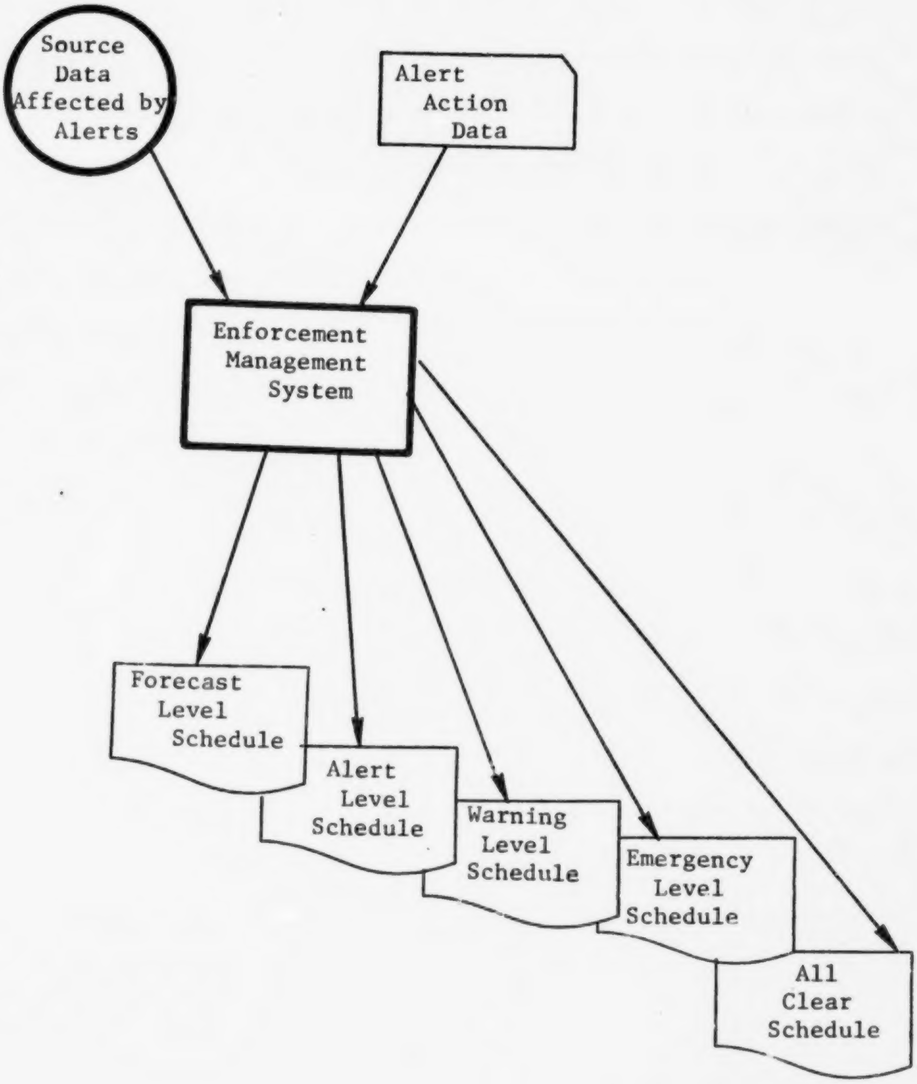

Source Data Affected by Alerts
Alert Action Data
Enforcement Management System
Forecast Level Schedule
Alert Level Schedule
Warning Level Schedule
Emergency Level Schedule
All Clear Schedule

Figure 6.1. Schematic, processing of alert data.

7.0 COMPLAINT HANDLING

The Enforcement Management System is designed to process complaint data, and to monitor and record these activities in order to improve the effectiveness of complaint handing.

Complaints can be divided into two groups:

- o Those concerned with a specific and known source whose activities are detailed in the agency's files, and in the system.
- o Those dealing with generalized problems (such as an unidentified odor), with unregistered sources, or with emissions sources so small and localized that they are exempt from regulations.

Handling of complaints on known sources is similar to the handling of normal source actions. The receipt of the complaint is regarded as an "action" in itself, and is so recorded in the system. If it is quickly resolved, such as by a phone response, the action is complete. An action card is fed into the system with the NO FURTHER ACTION option circled, and any appropriate comments are entered. For example, a complaint might deal with a situation which is in the process of being corrected. The person making the complaint would be informed of the corrective action, and the date that the corrective action would be complete. If the complaint cannot be quickly resolved, and an inspection or other activity is indicated, the action card is fed to the system with the next action indicated and the name of the staff member who is to perform the task. From then on, of course, the process takes on the form of normal activity. An inspection may lead to a source test, a registration, or other activity, which is monitored as indicated in the system descriptions.

The case of a complaint that is not directly connected with a known source poses a different problem. Figure 7-1 shows the steps to be followed (availability of all system products is assumed). After the complaint has been received, it is entered into the system associated with a "general source," maintained in the system for this purpose. A smaller agency may maintain one such record, while a larger agency will have a larger number of such "general sources," one for each major geographic subdivision. These sources have a pre-assigned number for the emission point. This number is associated with each of these non-specific complaints as they are received. Several complaints may be associated with this one number. Complaints related to an apparently different source are associated with a different emission point number.

Through the particulars of the complaint, or through knowledge of events in the area, the agency may make a general assessment as to the general validity of the complaint facts, and this is entered into the system as "comments."

Next, the geographic locator is consulted for likely sources of the problem. The locator shows all registered sources in sequence by grid square and also by street address. Using a general knowledge of prevailing meteorological conditions, the grid square or address upwind of the complaint location is noted. This step forms a review of the probable type of emissions and the proximity of likely sources.

Next, an inspection of the complaint site is scheduled. If a single source is suspected, the inspection centers upon that source. If the problem

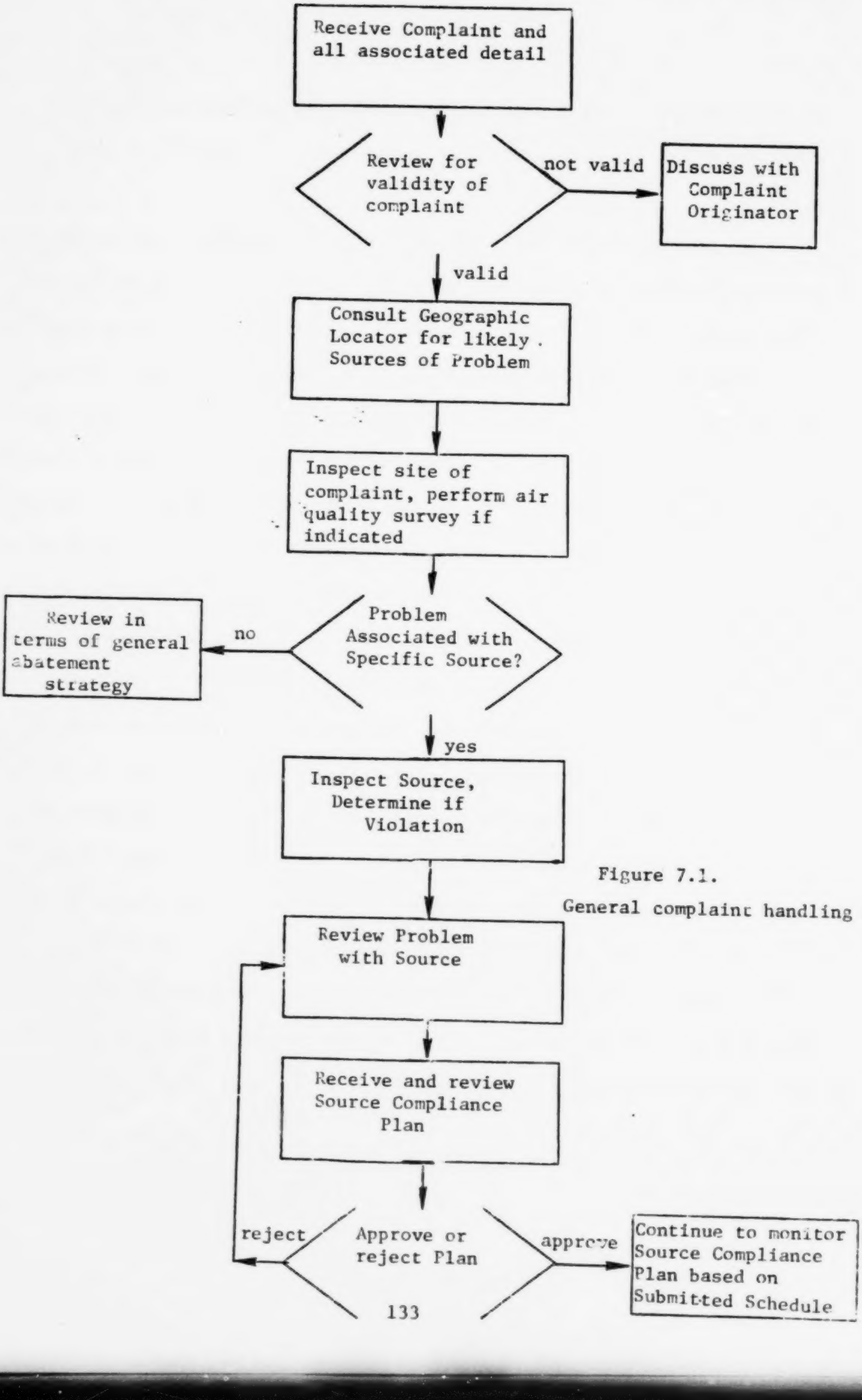

Receive Complaint and all associated detail
Review for validity of complaint
not valid
Discuss with Complaint Originator
valid
Consult Geographic Locator for likely Sources of Problem
Inspect site of complaint, perform air quality survey if indicated
Problem Associated with Specific Source?
no
Review in terms of general abatement strategy
yes
Inspect Source, Determine if Violation
Review Problem with Source
Receive and review Source Compliance Plan
Approve or reject Plan
reject
approve
Continue to monitor Source Compliance Plan based on Submitted Schedule

Figure 7.1.

General complaint handling schematic.

is still undefined, an area survey is performed, perhaps supplemented with actual air quality readings by either mobile or stationary instruments.

The results of the survey may lead to the discovery of an unregistered source, may indicate an operational change in a known source, or may not point to any specific emissions source. In the case of a general problem with multiple sources involved, a review of abatement strategy for the area is indicated. This may involve continuing air quality surveillance and ultimate review of a large number of sources. Such enforcement activities are tracked and monitored by the system, still associated with the specific complaint, until abatement of specific sources is undertaken. General strategy assessment is not monitored, although comments associated with the complaint resolution may indicate that this assessment is taking place.

Where a particular point is identified as the cause of the problem, the agency's role becomes more routine. An inspection is scheduled with an action card, and the results dictate the next actions, such as registration (if a new source), correction of control device failure, submission of a plan for additional emissions reduction, or legal action. When the complaint is matched to a specific source, the processing is closed out under the general "dummy" source entry and further activity is coded with the source number of the now-known emission source. The original complaint record stays with the general entry, and the comments specify the source that was eventually associated with the complaint.

In certain cases local agencies may handle a complaint on "quick response basis." For example, a phone complaint may be received reporting a smoke problem and the local agency may dispatch an inspector by radio. The inspector may resolve the problem on the spot, as in the case when a simple adjustment is needed to an incinerator control device. Since the Enforcement Management System does not operate in real-time, but rather produces its various reports, action cards and schedules on a "batch" basis, it is not possible to handle this type of complaint through the regular scheduling routines of the system. In most cases, however, such complaints should be entered into the system for historical and reporting purposes. This will be particularly true in cases where the pollution source is being carried in the Data Base. In other cases where the source is not carried in the Data Base, local agencies may not want to enter such actions into the system. An example of this might be a complaint about emissions from an individual house or small retail establishment not considered a major source of pollution by the local agency. When a complaint is to be entered into the Data Base after the action has been completed, the special action card format should be utilized. This is described in detail in Section 3.0 . If the complaint activity is entered in this way, the system will include the action on the various management oriented summaries that are prepared, and in addition, will show the complaint on the source actions summary for the individual pollution source. In this way the agencies records will be complete regarding both the staff activity and the action related to the specific source. A special action card can also be used to schedule a future agency action to follow up on the activity which has already been completed. For example, an inspection might be scheduled 30 days later to determine that the initial corrective action was adequate and was still providing control of the problem which had caused the initial complaint. If this additional inspection is entered into the system by means of the special action card, the normal scheduling and reporting functions of the system will track, monitor and record that action, just as is done in other types of activity.

8.0 AIR QUALITY RELATIONSHIP

The Enforcement Management System can be an aid to agency personnel as they review air quality readings.

For example, in interpreting the significance of air quality levels at a particular point, the agency staff may wish to review the sources which are making a contribution to pollutant levels at that location. Reference to the geographic locater which is arranged by grid square would indicate pollutant sources which are likely significant contributors to the air quality at a particular point. Reference to the source registration printout will indicate the types of pollutant being emitted from the individual sources known to the agency. This will potentially eliminate some of the sources. For example if the SO_2 level at a particular point is being analyzed, sources emitting only particulates can be eliminated.

If a specific agency has not "gridded" the sources being processed by the system, the geographic locator which lists sources by city and street address will provide an indication of the potential contributor to pollutant levels at a particular point.

Various types of simulation models can be utilized to further estimate the contribution from the various sources that have already been identified as described above. If the emissions from these sources can be quantified for the period covered by the air quality readings, single source models can be used to calculate the downwind concentration from the specific source. More comprehensive models can be utilized to incorporate all pertinent sources into the calculation. These can be of the manual model type or short-term models which make predictions based on specific parameters, including meteorology, seasonal factors, heating load information, and diurnal factors related to the individual sources.

Adding successful calibrated models of these types to the situation so that the model predictions approximate the actual readings, the agency can go on to simulate the effects of various abatement strategy. For example, the installation of various types of control equipment (with appropriate percentage reduction of emissions) can be simulated by the model and the improvement in air quality levels can be estimated.

Contribution from so-called area sources must also be considered in these calculations. Emissions from sources such as automobiles, home heating and minor commercial activities can make a significant difference in pollutant levels which are recorded. Various models which are either available or being developed take these factors into consideration in various ways. Entries may be made for the various types of area sources and adopted to the periods being modeled, or, for the simpler model versions, a single background concentration level may be included in either the mechanized or subsequent manual calculations.

APPENDIX

APPENDIX

This appendix presents technical details of the computerized systems. It consists of the following sections:

1. System Narrative-Overview
2. Program Narrative
    1. Program 1 - Update
    2. Program 2 - Extract
    3. Program 3 - Print run
    4. Description of Sort 1 and 2
3. Startup Procedures
    1. Initializing COBOL Tables
    2. Building the Initial Master File
4. Edit Descriptions
5. Operating Instructions
    1. Request for computer processing
    2. JCL for IBM 360 DOS and OS
6. Master File Record Layouts
7. Control Card Layout
8. Personnel and Letter Card Layout
9. Keypunch Instructions

Source decks, program listings, and flow charts are available upon request through the appropriate Regional Office or by writing to:

Lloyd M. Hedgepeth
Environmental Protection Agency
Office of Air Programs
Research Triangle Park, N. C. 27711

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1.0 SYSTEM NARRATIVE - OVERVIEW

The Enforcement Management System is under the direct control of the Data Bank Coordinator. His responsibilities will be to schedule computer time and services; review data input forms before keypunching; and prepare a current control card. Once these functions have been completed and the forms routed to their correct destinations (e.g. input-preparation, computer center, etc.) the automated computer system will be activated. Figure 1.1 depicts the complete system and the flow of data through it.

Transactions (new sources, manual action cards, changes to the master file, deletions and returned action cards) are placed on magnetic tape by using a standard card to tape utility. This step may be eliminated if input is produced by a key-tape, key-disk or similar device.

The first sort arranges the random transactions into the same sequence as the master file. The sort key is the first 19 characters of the transaction record. It includes agency number, county, source number, emission point, action number, card type, and comment line number. The "low order" (comment line number) will only affect the sort when there are "comment" cards.

The sorted transaction file is used as "input" to the update program. All transactions are validated and, if found to be error-free, will be applied to the existing master file data. The update program also schedules new actions, assigns staff members to both sources and specific actions, reschedules appropriate actions, and prints an edit and error report, reflecting all activities against the master file.

The extract program accepts the newly created master file as input.

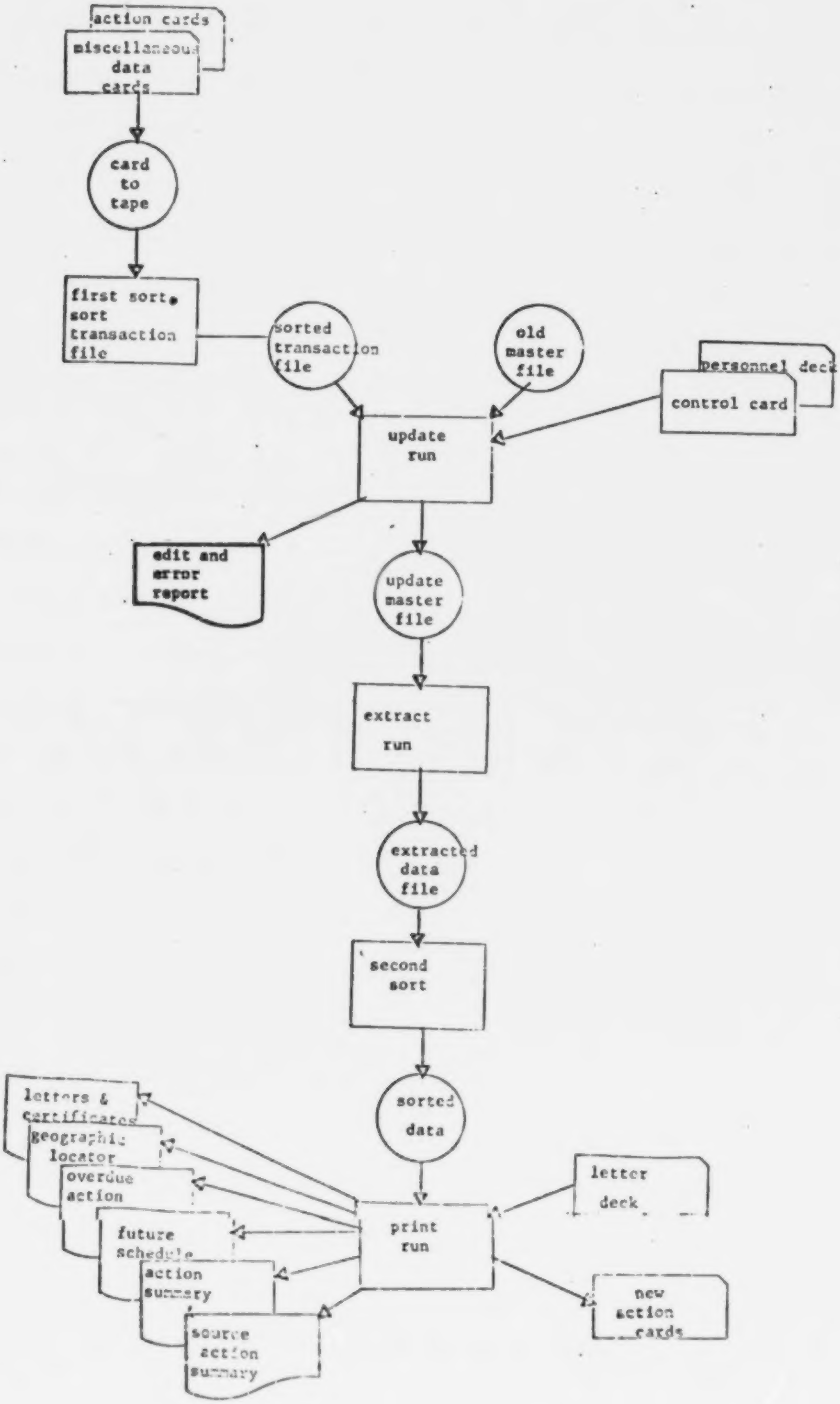
action cards
miscellaneous data cards
card to tape
first sort, sort transaction file
sorted transaction file
old master file
personnel deck
control card
update run
edit and error report
update master file
extract run
extracted data file
second sort
sorted data
letters & certificates
geographic locator
overdue action
future schedule
action summary
source action summary
print run
letter deck
new action cards

Figure 1.1. Computer processing schematic.

The first record on the file is the control record which was created by the update program from the control card. This record contains the basic information concerning which reports are required during this cycle. Data is taken off the master file and written on the extract file based on each of the report requirements. One master file field may appear on several reports (e.g. source name); therefore, as many as 10 different extract records could be created. This requires adding a "prefix" to the basic data records so that they can be sorted correctly. The sort keys are discussed under section 2.2 of this appendix.

The extract file is then used as input to the second sort. The records are arranged in the same sequence in which they are to appear within the printed reports. The output tape (known as the "extract tape") contains all data necessary to produce the desired reports, letters and new action cards.

The sorted extract tape as well as the letter deck are inputed into the print program. The letter deck contains the body of the letters as well as the names of the people who are to sign them. Since the same letter could be sent to different sources, one entire letter is saved within memory until a different letter is called for by the extract tape file. In order to accomplish this the letter deck must be sorted in agency, and letter type order (columns 3 through 7). The print tape information is "formatted" into the individual report requirements and can be printed "on-line", or "spooled" to be printed later. Action cards are created using specially preprinted punch cards. The individual letters are generated (with necessary carriage controls), and written as a separate file to magnetic tape. At the conclusion of the print run, the correct agency forms are placed on the printer and the letters are produced using a standard tape-to-print utility.

The Action cards are interpreted, the reports separated, and the carbons removed. The entire package is sent back to the data bank coordinator who will disseminate the reports and Action cards to the various agencies using the system.

2.0 PROGRAM NARRATIVES

2.1 Program 1 - Update

This is the first COBOL program of the Enforcement Management System. Its basic functions are: validating of all transactions entering the system; adding new sources to the master file; changing existing records on the master file; removing (deleting) existing records from the master file; and assigning staff members to sources and specific actions.

All dates (date scheduled, date performed, today's date, etc.) entering the system are checked for a valid month (1-12), a valid day (1-31), and a valid year (not before 1960). When dates are validated, they are reversed from month, day, and year, to year, month, and day (within paragraph named 104-DATE-FLOPPING). The two reasons for "flopping" the dates are:

a. date compares can be one statement, and
b. when used within a sort key, records will be arranged in correct chronological order.

To prevent an action from being omitted from any of the reports because of an invalid or missing date, the system "plugs in" dates as needed. If the returning action card does not have a performed date (date action was accomplished), the program uses the run date (today's date from the control card) in its place. In the same manner, if the scheduled date (date the next or current action is to take place) is omitted, the system schedules the action 1 month into the future. This is accomplished by using the run date and adding one month to it; for example, if today's date is 10-01-71, then the scheduled date is 11-01-71.

When the action card is returned with a next action to be performed, the results of the current action are placed on the current action record, and any pertinent data for the next action will be put on a separate record. Since action numbers are in ascending sequence, and since placing the next action record immediately after the current one could duplicate the following action record's number, the next action data must be "stored" to be used later (See Figure 2.1). The program will allow up to three records to be held in a "work area" (TRANSACTION-HOLD); any additional records will overlay each other. When there is a logical break within either the transaction file or the master file, the "stored" action records are written out to the updated master file.

Records on the master file can be removed by using a delete card ("D" in column 80 of transaction card). Figure 2.2 describes the format of a typical source on the master file. Records may be deleted in one of three ways:

a. remove the entire source (exhibit A)

b. remove one emission point and all actions related to it (exhibit B)

c. remove one action and all comments (exhibit C).

It is necessary to use the correct coding on the delete card to remove the desired record(s). Referring to Figure 2.2, records can be deleted as following:

a. When emission point and action number fields are zeros the entire source will be removed. Exhibit A of Figure 2.2 depicts this. All records (emission point, action, comments, etc.) pertinent to one source are removed.

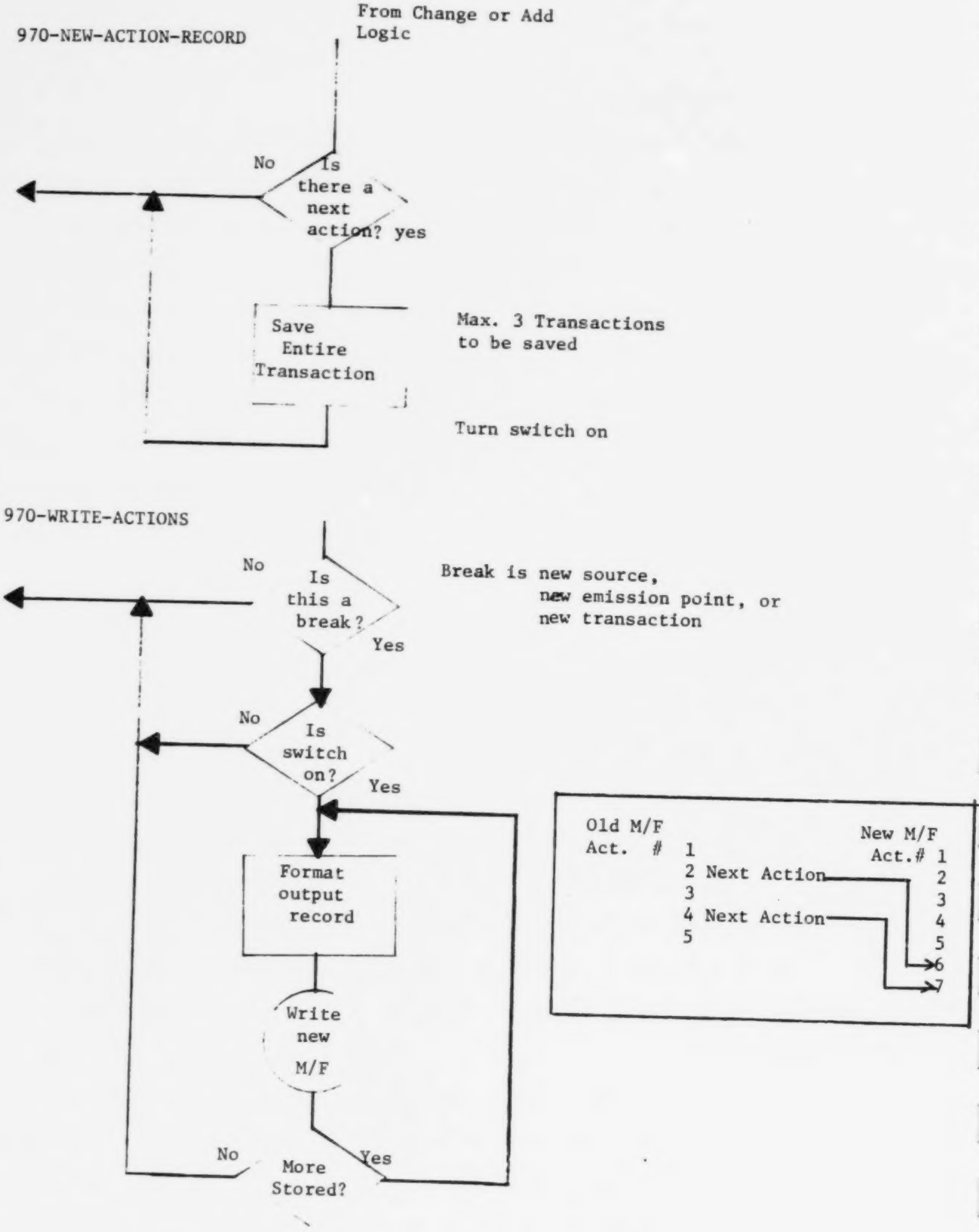
970-NEW-ACTION-RECORD
From Change or Add Logic
No
Is there a next action?
yes
Save Entire Transaction
Max. 3 Transactions to be saved
Turn switch on
970-WRITE-ACTIONS
No
Is this a break?
Yes
Break is new source, new emission point, or new transaction
No
Is switch on?
Yes
Format output record
Write new M/F
No
More Stored?
Yes
Old M/F Act. #
1
2 Next Action
3
4 Next Action
5
New M/F Act.#
1
2
3
4
5
6
7

Figure 2.1. Adding new action record to master file.

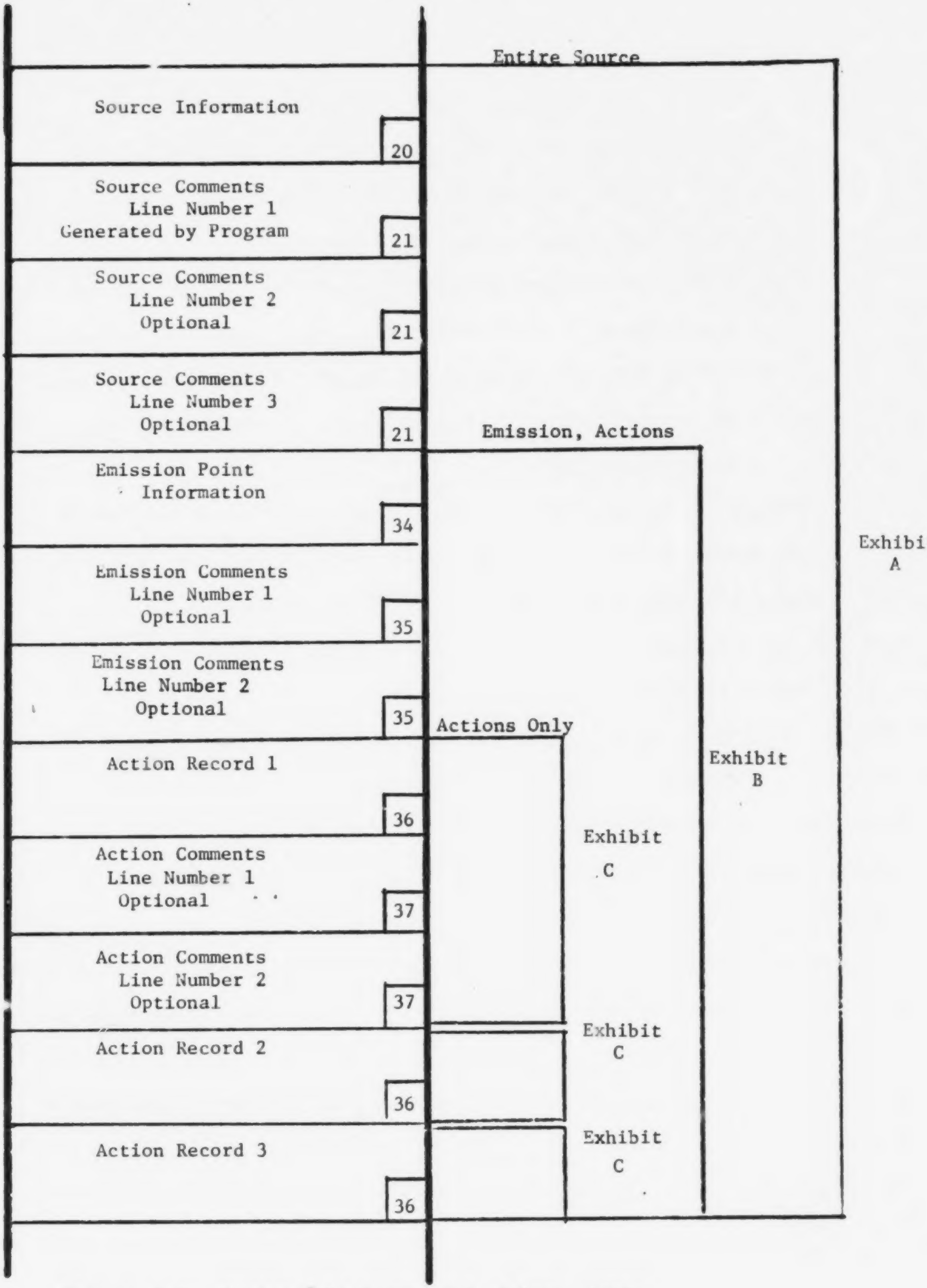
Entire Source
Source Information
20
Source Comments
Line Number 1
Generated by Program
21
Source Comments
Line Number 2
Optional
21
Source Comments
Line Number 3
Optional
21
Emission, Actions
Emission Point
Information
34
Emission Comments
Line Number 1
Optional
35
Emission Comments
Line Number 2
Optional
35
Actions Only
Action Record 1
36
Action Comments
Line Number 1
Optional
37
Action Comments
Line Number 2
Optional
37
Action Record 2
36
Action Record 3
36
Exhibit A
Exhibit B
Exhibit C
Exhibit C
Exhibit C

Figure 2.2. Master file format and delete logic.

b. When only the action number field is zero, one emission point record will be removed. Exhibit B of Figure 2.2 depicts this. One entire emission point and its related action and comment records are removed.

c. When neither the emission point or action number fields are zeros, but a "D" is in column 80 (update code), one action will be deleted. Exhibit C of Figure 2.2 depicts this. One action record and its related comment records (if any are present) are removed.

To save excessive input preparation, the update program eliminates as much of the redundant work as possible. When a change is required, only the desired field need be entered. Any other fields should be left blank and will not affect the file. To eliminate (replace valid data by spaces) a field within a record, one or more asterisks are inserted within the field to be eliminated (change card). The program translates asterisks to non-printable characters (HEX 41) and replaces the existing field on the master file with this "odd" field (this works only on alphabetic field; numeric fields should be "zeroed out"). Before writing the new master file, the "odd" characters are translated into spaces.

When new actions enter the system, they need not contain the correct action number; instead, they can be coded either 99 or 00. The program places the new action record at the end of a string of existing actions (within agency, county, source, and emission point) and inserts the correct action number within the record (one higher than the last action number on the master file). This procedure eliminates the need to cross-reference the source action report before entering a new action.

An action can be directed against an entire source, rather than a specific emission point. For this reason an emission point 000, with the term "entire source" as its description, is automatically generated each time a new source is added to the master file.

Since the personnel file (card deck) only enters the system through the update run, the staff member's name and title must be saved for future use. For the source record, the name of the inspector and the engineer can be found on record type 21. Since record type 21 is used as a comment record and the number of records is variable, the names are found only on the first source comment record. This means that there will always be a record 21 (line number 1), whether or not there are source comments. The assigned staff member's name and title are stored on the action record type 36 (this is done in case they are different from the assigned staff members within record type 21). Names stored by the system are not accessible to the user through changes but will be changed when there is a change to an assigned staff member. This is accomplished through the program and requires no special coding.

2.2 Program 2 - Extract

The second COBOL program of the Enforcement Management System is used to extract data necessary to produce the required individual reports. The program is divided into two distinct logic paths: Report Selection and Data Selection.

2.2.1 Report Selection

The control card, which was read into the system via the update program, is carried as the first record on the newly-created master file. The "report selection fields" (column three to eight of the control card) are used to turn on corresponding switches (any character within the control field will set a switch so as to create the desired report). Each report could require some of the same data; therefore, each master file record must pass through the entire report selection logic (paragraph named 102-MAIN-LOGIC) before it can be discarded. This could result in the creation of up to 10 extract records for each master file record.

2.2.2 Data Selection

Each of the data selection modules are closed subroutine (secondary logic paths that are only executed from the main path). Data is either stored in work areas or written directly to the extract file depending on the report requirements.

> e.g. The source registration report lists all sources; therefore no data need be saved. The future schedule summary only reports actions to be performed in the future. This requires saving data until an action record is read. This is then checked to verify if it is a future action, if not it is bypassed.

Before any record can be written to the extract file, a 46-character continuous sort key must be added. This sort-key will be used to arrange records in a chronological order within individual reports (Records are created in random order, not in report order). The sort keys for each report are (left to right in descending value):

(0) Action Cards

Agency, Staff Number

(1) Source Registration

Agency, County, Source, Emission Point

(2) Action Summary

Agency, County, Source, Action Number

(3) Source Action Summary

Agency, County, Source, Emission Point

(4) Overdue Action Report

Agency, County, Staff Number

(5) Geographic Locator by grid coordinates

Agency, X-Grid Coordinate

(5) Geographic Locator by city, street

Agency, City, Street Name, Street Number

(6) Future Action Summary by section

Agency, Section, Date Schedule, Source, Action Number

(6) Future Action Summary by individual

Agency, Staff Number, Date Schedule, Source Number, Action Number

(9) Letter, Permits, etc.

Agency, Letter Type Code, Source Number, Emission Point

2.3 Program 3 - Print Run

The third and final COBOL program of the Enforcement Management System is the print program. Its main functions are to punch new action cards and to produce the desired reports from the sorted extract tape.

The necessary logic is fairly simple. Each input record (which is part of an individual report) is tested to find the type of record it is (first character of sort key) and "control" is passed to the appropriate routine to print each report. Data fields are saved internally (in WORK-HOLD-AREAS) until there is a logic break (new source, new action, etc.), and then a section of the desired report is printed.

There are three common subroutines performed by most report modules. All dates on the file are in year, month, and day format (flopped in update program). Before they can be printed on individual reports they must be reversed to month, day, year format and slashes (/) inserted between subfields (paragraph named 815-DATE-FLOP). For example:

On Master File:	711201;
On reports:	01/12/71

All report headings and subheadings are written from one closed subroutine (paragraph named 810-HEAD-ROUTINE). Parameters (name of report, section name, etc.) are setup before control is passed. This enables the correct headings to appear at the top of each page. The last common subroutine converts the fixed length street name and/or city, state, zip into a left-justified variable length field (paragraph named 800-SQUEEZE-ADDRESS) by suppressing all redundant spaces. For example:

```
On file:     HARTFORD           CT06102;
On report:   HARTFORD CT 06102.
```

The production of "canned" letters requires that one complete letter be saved until there is a need for another one. This enables one letter to be sent to more than one source without entering duplicate letter cards. If there is no match between the print tape and the letter deck, an error message is written on the printer and the next letter request (next record on print tape) will be fulfilled. This logic requires that the letter deck must be in ascending sequence by agency and letter code. Letters are separated by line number 999 (see letter deck description under section 8.0 of this appendix) which signals the end of a letter and also provides the name of the person who will sign it (name is left justified).

2.4 Description of Sort 1 and 2.

The first sort arranges all input transactions in the same sequence as the master file. The sort key consists of the first 19 characters of the transaction card. Assigning a work file is relatively simple, although the size of the file will vary. Each run usually will not contain more than 1000 input records unless the system is being used by three or four large agencies. Therefore, one thousand 80-column records would require less than 40 tracks or four cylinders.

The second sort arranges the extract output into a logical print tape. It uses a 49-character sort key (46-character key, record type, and comment line number). Assigning a work file becomes much more difficult because one master file (which is continuing growing in size) record could create up to 10 extract records. To avoid overflow problems always assign a very large area. One disk pack could be allocated to the Enforcement Management System. All three programs could be catalogued to it and the remainder of the disk pack used as a sort work file. This would take care of most requirements.

3.0 STARTUP PROCEDURES

The Enforcement Management System is a collection of computer programs which are to be used by state and local agencies to enforce air pollution controls. The system is written in COBOL to keep program maintenance to a minimum. In order to make the system completely flexible to the changing demands of its users, a series of internal tables are utilized. They contain basic local information required by the computer programs. Since each agency using this system will make different entries for each table, an explanation of table setups follows. The tables are arranged in ascending collating sequence for ease of expansion.

3.1 Initializing COBOL Tables

The system is divided into three programs. Each program requires that certain local data be entered before the system can be implemented.

3.1.1 Initial Entries in Update Program

Personnel Table

See Table 3.1. The update program reads in personnel cards (see section 8 for layout) and creates a table of all staff members. From this table staff members are assigned to various sources and actions. As supplied, the table has room for 200 entries. If additional entries are required the "OCCURS" statement must be changed to reflect the increase in staff. If the table is expanded to more than 999 staff members, TOTAL-PERSONNEL-CARDS (under Working-Storage) must also be enlarged. This field acts as a counter and terminates the table search during the assigning segment of the program.

```
020100 01 PERSONNEL-TABLE.                                                TRC42881
020110     03 FILLER   OCCURS 200 TIMES.                                  TRC42881
020120         05 AGENCY-EMPLOYEE.                                        TRC42881
020130             07 TB-AGENCY          PICTURE 9(3).                    TRC42881
020140             07 TB-EMPLOYEE        PICTURE X(3).                    TRC42881
020150         05 TB-STAFF-NAME          PICTURE X(15).                   TRC42881
020160         05 TB-TITLE               PICTURE X(15).                   TRC42881
```

Table 3.1. Personnel Table.

Agency Table

Table 3.2 contains the names of all agencies using the system and their assigned number code. The agency number is compared with the stored agency number; if they are equal, the agency name is used in printing the standard heading for the printed reports. The first entry (AG-NUM) is the agency number, in three digits: 001 to 998. The second entry is the agency's name (AGENCY-HEAD) which is centered within 29 characters. If the agency's name is too large, it can either be abbreviated or the receiving field can be enlarged. The last agency number within the table must be 999; this is used to stop the search.

Action Table

See Table 3.3. This table is used to validate actions and supply English-language descriptions for various action codes. The action code (TB-ACTION-CODE) is in two digits, 01 to 98, in ascending order. This is followed by the action name (TB-ACTION), which is left-justified within 15 characters. If it should become necessary to increase the length of the action field, all three programs must be changed. An "action 99" must be the last entry within the table; this terminates the search.

Possible COBOL Statements to be Changed within Update

If "Reschedule Action" is no longer coded as 02 throughout the system, statement 123-CHANGE-7 must be replaced with the correct numeric value for the "Reschedule Action" option.

```
022160 01 FILLER.                                                          TRC42881
022170      02 AGENCY-TABLE.                                               TRC42881
022180      03 FILLER   PICTURE 9(3)  VALUE IS 001.                        TRC42881
022190      03 FILLER                    PICTURE X(29) VALUE IS            TRC42881
022200                                   ' AIR POLLUTION CONTROL AGENCY'.  TRC42881
023010      03 FILLER   PICTURE 9(3) VALUE IS 002.                         TRC42881
023020      03 FILLER                    PICTURE X(29) VALUE IS            TRC42881
023030                                   '     CLEAN AIR PROTECTION    '.  TRC42881
023040      03 FILLER   PICTURE 9(3) VALUE IS 004.                         TRC42881
023050      03 FILLER                    PICTURE X(29) VALUE IS            TRC42881
023060                                   '    ANTI-POLLUTION AGENCY    '.  TRC42881
023070      03 FILLER   PICTURE 9(3) VALUE IS 010.                         TRC42881
023080      03 FILLER                    PICTURE X(29) VALUE IS            TRC42881
023090                                   '   ENVIRONMENT PROTECTION    '.  TRC42881
023100      03 FILLER   PICTURE 9(3) VALUE IS 999.                         TRC42881
023110      03 FILLER   PICTURE X(29) VALUE IS SPACES.                     TRC42881
023120      02 RE-TABLE REDEFINES AGENCY-TABLE.                            TRC42881
023130          03 FILLER OCCURS 05 TIMES.                                 TRC42881
023140              05 AG-NUM            PICTURE 9(3).                     TRC42881
023150              05 AGENCY-HEAD       PICTURE X(29).                    TRC42881
```

Table 3.2. Agency Table.

```
023160 01 FILLER.                                                       TRC42881
023170     02 ACTION-TABLE.                                             TRC42881
023180         04 FILLER        PICTURE 99     VALUE 01.                TRC42881
023190       04 FILLER          PICTURE X(15) VALUE 'INSPECTION'.       TRC42881
023200         04 FILLER        PICTURE 99     VALUE 02.                TRC42881
024010       04 FILLER          PICTURE X(15) VALUE 'REGISTRATION'.     TRC42881
024020         04 FILLER        PICTURE 99     VALUE 03.                TRC42881
024030       04 FILLER          PICTURE X(15) VALUE 'PLAN SUBMISSION'.  TRC42881
024040         04 FILLER        PICTURE 99     VALUE 04.                TRC42881
024050       04 FILLER          PICTURE X(15) VALUE 'REVIEW W/SOURCE'.  TRC42881
024060         04 FILLER        PICTURE 99     VALUE 05.                TRC42881
024070       04 FILLER          PICTURE X(15) VALUE 'REGIST. REVIEW'.   TRC42881
024080         04 FILLER        PICTURE 99     VALUE 06.                TRC42881
024090       04 FILLER          PICTURE X(15) VALUE 'PLAN REVIEW'.      TRC42881
024100         04 FILLER        PICTURE 99     VALUE 07.                TRC42881
024110       04 FILLER          PICTURE X(15) VALUE 'SOURCE TESTING'.   TRC42881
024120         04 FILLER        PICTURE 99     VALUE 08.                TRC42881
024130       04 FILLER          PICTURE X(15) VALUE 'A.Q. SURVEY'.      TRC42881
024134       04 FILLER          PICTURE 99     VALUE 09.                TRC42881
024138       04 FILLER          PICTURE X(15) VALUE 'COMPLAINT RECD'.   TRC42881
024140         04 FILLER        PICTURE 99     VALUE 99.                TRC42881
024150       04 FILLER          PICTURE X(15) VALUE 'OTHER'.            TRC42881
024160     02 RE-ACTION-TABLE REDEFINES ACTION-TABLE.                   TRC42881
024170         04 FILLER OCCURS 09 TIMES.                               TRC42881
024180               06 TB-ACTION-CODE   PICTURE 99.                    TRC42881
024190               06 TB-ACTION        PICTURE X(15).                 TRC42881
```

Table 3.3. Action Table.

3.1.2 Initial Entries Within Extract Program

There are no tables requiring initialization, but there is one possible COBOL statement to be changed, located in paragraph named 118-REC-37-2. If a complaint is no longer action code 9, its correct numeric value must be substituted for the 9.

3.1.3 Initial Entries Within Extract Program

Section Table

See Table 3.4. This table contains the names of all sections using the system. The entries are arranged in a hexadecimal collating sequence (alphabetics followed by numerics). The first character of the staff member's number is checked against the first entry within the table (SEC-TABLE). When an equal condition is encountered, the second entry (TITLE-TABLE) is used as the section name. The last entry within the table must be a 9 (high value); for example, staff member E21 is a member of the engineering section.

Results Table

See Table 3.5. This table is used to translate the action result code into its descriptive equivalent. The table is broken into two levels: the Results Code (TB-REST-CODE), which is 01 to 99; and its accompanying description (TB-RESULTS) field (maximum 15 characters left-justified). The final entry should be "Results Code 99." This will end the search routine.

Agency Table

See Table 3.6. This table is similar to the agency table appearing within the update program. The agency's name field is

```
5340 01 FILLER.                                                         TRC42883
5350     03 SECTION-TABLE.                                              TRC42883
5360         05 FILLER PICTURE  X      VALUE 'E'.                       TRC42883
5370         05 FILLER  PICTURE X(23) VALUE 'ENGINEERING            '.TRC42883
5380         05 FILLER PICTURE X       VALUE 'I'.                       TRC42883
5390         05 FILLER  PICTURE X(23) VALUE 'INSPECTION             '.TRC42883
5400         05 FILLER  PICTURE X      VALUE 'N'.                       TRC42883
5410         05 FILLER  PICTURE X(23) VALUE 'NORTH REGIONAL ENGINEER'.TRC42883
5420         05 FILLER  PICTURE X      VALUE 'S'.                       TRC42883
5430         05 FILLER  PICTURE X(23) VALUE 'SOUTHERN DISTRICT INSP.'.TRC42883
5440         05 FILLER  PICTURE X      VALUE '9'.                       TRC42883
5450         05 FILLER  PICTURE X(23) VALUE SPACES.                     TRC42883
5460     03 RE-SECTION-TABLE REDEFINES SECTION-TABLE.                   TRC42883
5470         05 FILLER OCCURS 5 TIMES.                                  TRC42883
5480             07 SEC-TABLE          PICTURE X.                       TRC42883
5490             07 TITLE-TABLE        PICTURE X(23).                   TRC42883
```

Table 3.4. Section Table.

```
5500 01 FILLER.                                                TRC42883
5510     03 RESULTS-TABLE.                                     TRC42883
5520         05 FILLER         PICTURE XX     VALUE '00'.      TRC42883
5530         05 FILLER         PICTURE X(15) VALUE SPACES.     TRC42883
5540         05 FILLER         PICTURE XX     VALUE '01'.      TRC42883
5550         05 FILLER         PICTURE X(15) VALUE 'NO FURT. ACTION'.TRC42883
5560         05 FILLER         PICTURE XX     VALUE '02'.      TRC42883
5570         05 FILLER         PICTURE X(15) VALUE 'FOLLOW NXT STEP'.TRC42883
5580         05 FILLER         PICTURE XX     VALUE '03'.      TRC42883
5590         05 FILLER         PICTURE X(15) VALUE 'RESCHED. ACTION'.TRC42883
5600         05 FILLER         PICTURE XX     VALUE '04'.      TRC42883
5610         05 FILLER         PICTURE X(15) VALUE 'DATA NOT RECD  '.TRC42883
5620         05 FILLER         PICTURE XX     VALUE '99'.      TRC42883
5630         05 FILLER      PICTURE X(15) VALUE 'OTHER          '.   TRC42883
5640     03 RE-RESULTS-TABLE REDEFINES RESULTS-TABLE.          TRC42883
5650         05 FILLER OCCURS 6 TIMES.                         TRC42883
5660             07 TB-REST-CODE      PICTURE XX.              TRC42883
5670             07 TB-RESULTS        PICTURE X(15).           TRC42883
```

Table 3.5. Results Table.

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```
6200 01 FILLER.                                                       TRC42883
6210     02 AGENCY-TABLE.                                             TRC42883
6220     03 FILLER   PICTURE 9(3)  VALUE IS 001.                      TRC42883
6230     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6240                                 ' AIR POLLUTION CONTROL AGENCY'. TRC42883
6250     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6260                                  'AIR POLLUTION CONTROL AGENCY'. TRC42883
6270     03 FILLER   PICTURE 9(3) VALUE IS 002.                       TRC42883
6280     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6290                                 '     CLEAN AIR PROTECTION    '. TRC42883
6300     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6310                                      'CLEAN AIR PROTECTION    '. TRC42883
6320     03 FILLER   PICTURE 9(3) VALUE IS 004.                       TRC42883
6330     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6340                                 '     ANTI-POLLUTION AGENCY   '. TRC42883
6350     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6360                                      'ANTI-POLLUTION AGENCY   '. TRC42883
6370     03 FILLER   PICTURE 9(3) VALUE IS 010.                       TRC42883
6380     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6390                                 '   ENVIRONMENT PROTECTION    '. TRC42883
6400     03 FILLER                   PICTURE X(29) VALUE IS           TRC42883
6410                                    'ENVIRONMENT PROTECTION    '. TRC42883
6420     03 FILLER   PICTURE 9(3) VALUE IS 999.                       TRC42883
6430     03 FILLER   PICTURE X(29) VALUE IS SPACES.                   TRC42883
6440     03 FILLER   PICTURE X(29) VALUE IS SPACES.                   TRC42883
6450     02 RE-TABLE REDEFINES AGENCY-TABLE.                          TRC42883
6460         03 FILLER OCCURS 05 TIMES.                               TRC42883
6470             05 AG-NUM           PICTURE 9(3).                    TRC42883
6480         05 AGENCY-HEAD          PICTURE X(29).                   TRC42883
6490             05 LETTER-AG-HEAD   PICTURE X(29).                   TRC42883
```

Table 3.6. Agency Table.

used to print both the standard heading which appears at the top of each report and the agency's name which appears on all letters. To simplify this procedure the table is increased to three levels: the agency number (AG-NUM), 001 to 998; the agency's name (AGENCY-HEAD), centered within 29 characters; and the agency's name (LETTER-AG-HEAD), left-justified within 29 characters.

Action Table

See Table 3.1. This table is an exact duplicate of the Action Table appearing within the update program. It is used to translate both the action code and the next action code to their appropriate descriptions.

Letter Table

See Table 3.7. This table is used to translate the letter code (from the action card) into a subject heading describing the contents of the letter. There is room for 99 different letter titles, arranged in ascending order by letter code. The first entry (TB-LETTER) is the stored letter code, 01 to 99, followed by the subject description (TB-SUBJECT), 17 characters left-justified. The last entry within the Table must be 99 to terminate the search.

Possible COBOL Statements to be Changed within Print Program

Under paragraph 127-REC-36-4, the contents of the results field is tested for either a 3 or a 4, "Reschedule Action" or "Data not Received", respectively. Two statements must be altered if the above relationship has been changed and the correct numeric value substituted.

```
5960 01 FILLER.                                                          TRC42883
5970     03 LETTER-TABLE.                                                TRC42883
5980         05 FILLER  PICTURE XX     VALUE '01'.                       TRC42883
5990         05 FILLER  PICTURE X(17) VALUE 'REQUEST REGISTR. '.         TRC42883
6000         05 FILLER  PICTURE XX     VALUE '02'.                       TRC42883
6010         05 FILLER  PICTURE X(17) VALUE 'REQUEST PLAN     '.         TRC42883
6020         05 FILLER  PICTURE XX     VALUE '03'.                       TRC42883
6030         05 FILLER  PICTURE X(17) VALUE 'PERMIT APPLICAT. '.         TRC42883
6040         05 FILLER  PICTURE XX     VALUE '04'.                       TRC42883
6050         05 FILLER  PICTURE X(17) VALUE 'ISSUE PERMIT     '.         TRC42883
6060         05 FILLER  PICTURE XX     VALUE '05'.                       TRC42883
6070         05 FILLER  PICTURE X(17) VALUE 'ISS. COND. PERMIT'.         TRC42883
6080         05 FILLER PICTURE XX    VALUE '06'.                         TRC42883
6090         05 FILLER  PICTURE X(17) VALUE 'APPEAR AT AGENCY '.         TRC42883
6100         05 FILLER  PICTURE XX     VALUE '07'.                       TRC42883
6110         05 FILLER  PICTURE X(17) VALUE 'PLANNED VISIT    '.         TRC42883
6120         05 FILLER  PICTURE XX     VALUE '08'.                       TRC42883
6130         05 FILLER  PICTURE X(17) VALUE 'REGIS. APPROVAL  '.         TRC42883
6140         05 FILLER  PICTURE XX     VALUE '99'.                       TRC42883
6150         05 FILLER  PICTURE X(17) VALUE IS SPACES.                   TRC42883
6160     03 RF-LETTER-TABLE REDEFINES LETTER-TABLE.                      TRC42883
6170         05 FILLER OCCURS 9 TIMES.                                   TRC42883
6180             07 TB-LETTER         PICTURE XX.                        TRC42883
6190             07 TB-SUBJECT        PICTURE X(17).                     TRC42883
```

Table 3.7. Letter Table.

3.2 Building the Initial Master File

The update program of the Enforcement Management System requires as input a transaction file, a personnel file and a previously created master file. Since the first running of the system does not have a previously created master file, an initial file must be produced before the system can be implemented.

The initial file contains only two records: a control record (which is the same as the control card (see 7.0 within this section) and a dummy last record. The last record format is all nines (9's) in positions 1 through 18. This record ensures that the old master file will always contain an agency, county, and source number greater than any incoming transaction.

The file is created through a standard card to tape utility. The output is 180-character records, with a blocking factor of 10 (same as master file).

The JCL (Job Control Language) for IBM 360 DOS is shown in Figure 3.1. For IBM 360 OS the COPY or IEBGENER utility would be used to create an initial file.

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```
// JOB CARDTP
// ASSGN SYS004,X'00C'                       INPUT CARD READER
// ASSGN SYS005,X'180'                       OUTPUT - TAPE DRIVE
// UPSI 00101000                             NO TM BEFORE DATA, NO LABELS, TM AT END
// EXEC CDTP                                 EXEC STANDARD CARD TO TAPE UTILITY
// UCT TRF,FF,A=(80,80),B=(180,1800),I1,OR,R1     BLOCK 10, 180 CHARACTERS
// FS 1,80,1
// END
ZZXXXXXXXX  111171060171111C71ENFORCEMENT MANAGEMENT FILE INPUT SERIAL 000000
9999999999999999        DUMMY RECORD - LAST RECORD ON MASTER FILE
/*
```

Figure 3.1. Control cards to create Initial Master File.

4.0 EDIT DESCRIPTIONS

The following errors are detected in the edit and error program and are printed on the report. All transaction cards accepted into the system are also listed, for auditing purposes.

Note the use of the N, C, or D codes on the transaction cards. These codes, which stand for NEW, CHANGE, or DELETE, are used in the editing process to help avoid various types of coding errors.

New records are defined as any transaction record that does not have a like record on the master file. Therefore if a source has only the source name on the master file and the address and emission point (001) information are to be added, the emission point data will come as new (N) and the address data will be entered as a change (C), since there is already a source record on the file.

Change records can be defined as any transaction record that has a like record on the master file. Only the fields that are to be changed should be keypunched; others can be left blank. These blank fields will not be put out to the master file. To eliminate or blank out a field on the master file, an asterisk (*) should be keypunched anywhere within the field to be eliminated.

A delete card (D) can be used to delete an entire source (and all emissions and actions pertaining to that source), one emission point record (and all action records pertaining to that emission), or one action--but not the emission record for one emission point. (Section 2.1 of this appendix discusses record deletions in more details.)

NOTE

1. A change may not correct a new record just entered.
2. A new or changed record may not be deleted by a subsequent record.

The following are errors the system will detect:

Error	Actual Message	System Action
Card out of sequence	Out of Seq	Stop run--abort
Key data not numeric	Not num field	Reject record, continue run
Record type not valid--Code 1-8	Bad rec code	Reject record, continue run
Neither new, change or delete record	Bad rec code	Reject record, continue run
Action and/or emission record(s) without source (which could have been reject because of an error)	No source info	Reject record(s), continue run
Month not 1-12 Day not 1-31 Year less than 60	Bad date	Reject date, make date 00/00/00 and continue with transaction
No master file record for change/delete transaction	Not on file	Reject transaction, continue run
No match on control fields indicating either wrong master file, no control card, not current master file	No control card	Stop run--abort--resummit
New record is equal to existing record on master file	Code incorrect	Reject record, continue run

5.0 OPERATING INSTRUCTIONS

5.1 Request for Computer Processing

Requests for computer time and services forms are normally available from the user's computer installation. But because of the possibility of multiple users of the Enforcement Management System, it might become desirable to design a special form.

The form should include:

All supplies necessary to run system. This will enable operation personnel to assemble special forms, cards, etc. (e.g. action cards, preprinted letterheads, personnel cards, letter cards, etc.).

Special number of input master file and retention factor.

Description of control card information. Computer operations personnel (tape librarian, lead operator, etc.) may keypunch this card instead of the keypunch section. This could be desirable if transactions are on magnetic tape and there is the possibility of one card becoming misplaced.

Number of report copies. Print on 2-, 3-, or 4-ply paper. Request for bursting of report and interpreting of outputed action cards.

Location of transaction cards (or tape).

Any instructions for operation's personnel.

Figure 5.1 shows one example of a "run control" form. Figure 5.2 depicts the form completed to reflect scheduling of one cycle of the Enforcement Management System.

Date ______________

ENFORCEMENT MANAGEMENT COMPUTER SCHEDULE

Computer/Model ______________________ **Use:** Object Decks ______________

E.M.S. Level II ☐ Level III ☐ Disk Number ______________

Estimate Running Time ____.____ JCL Deck Number ______________

Charge Code ______________

Services:
- 2 ply ☐
- 3 ply ☐
- 4 ply ☐
- Bursting ☐
- Interpreting ☐

Return to ______________

Area/Section ______________

Special Forms:
- Action Cards Number ________
- Letter Stock ______________
- Other Cards ______________
- Other Stock ______________
- Personnel Deck ______________
- Letter Deck ______________
- Other ______________

Control Card:

ZZ	report		date	from	to	ENFORCEMENT MANAGEMENT FILE INPUT SERIAL	num.

Transaction File:

Card Deck ______________ Tape Number ______________ Retention in Days __________

Old Master File:

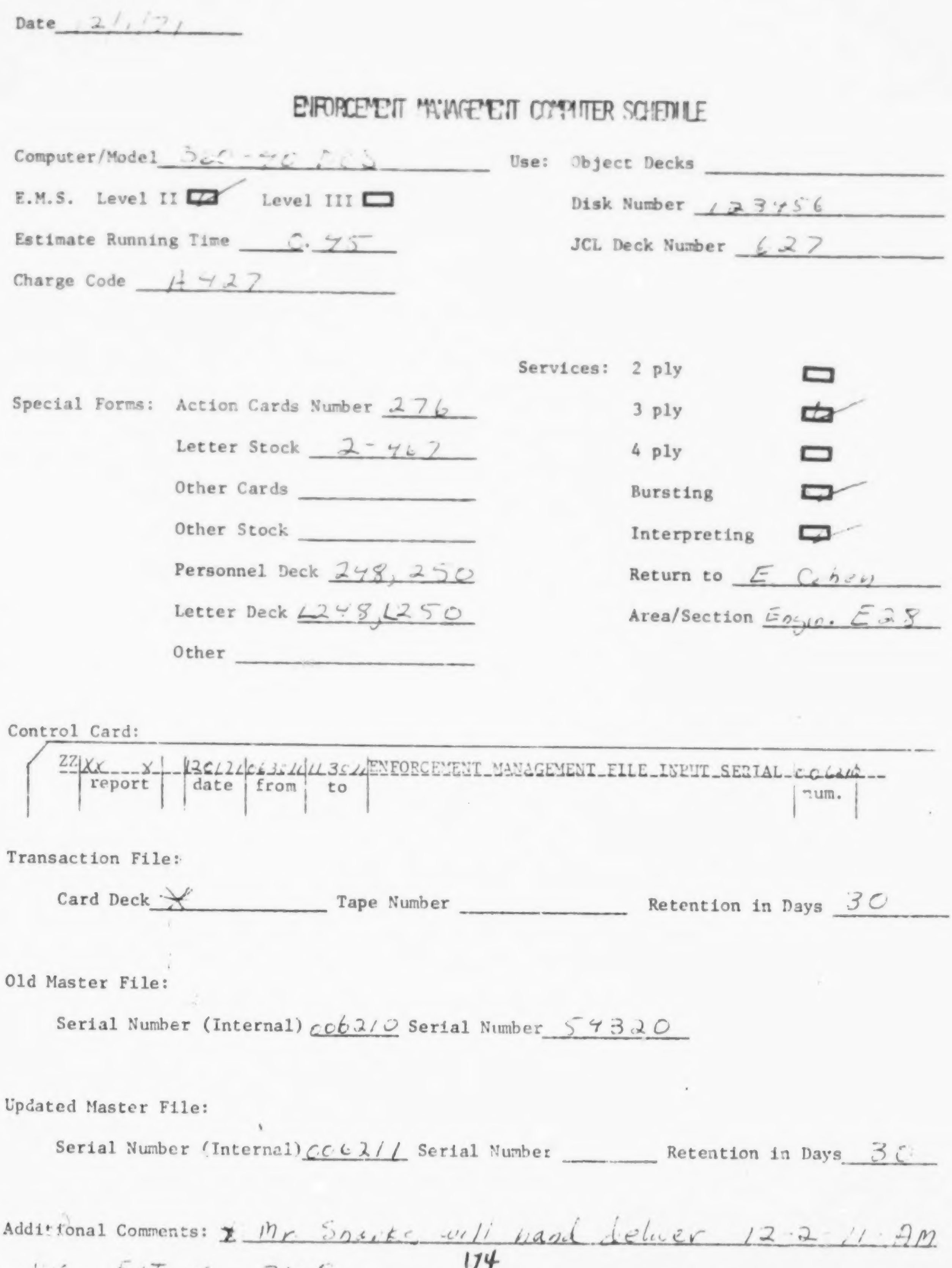
Serial Number (Internal) ________ Serial Number ______________

Updated Master File:

Serial Number (Internal) ________ Serial Number ________ Retention in Days ________

Additional Comments: ____

[illegible]. Request for computer time and services.



Date 12/1/71

ENFORCEMENT MANAGEMENT COMPUTER SCHEDULE

Computer/Model 360-40 DOS

Use: Object Decks ____

E.M.S. Level II ☑ Level III ☐

Disk Number 123456

Estimate Running Time 0.45

JCL Deck Number 627

Charge Code A427

Services:
- 2 ply ☐
- 3 ply ☑
- 4 ply ☐
- Bursting ☑
- Interpreting ☑

Return to E. Cohen

Area/Section Engin. E28

Special Forms:
- Action Cards Number 276
- Letter Stock 2-467
- Other Cards ____
- Other Stock ____
- Personnel Deck 248, 250
- Letter Deck L248, L250
- Other ____

Control Card:

ZZ	XX X		120171	063171	113071	ENFORCEMENT MANAGEMENT FILE INPUT SERIAL	006210	
	report		date	from	to		num.	

Transaction File:

Card Deck X Tape Number ____ Retention in Days 30

Old Master File:

Serial Number (Internal) 006210 Serial Number 54320

Updated Master File:

Serial Number (Internal) 006211 Serial Number ____ Retention in Days 30

Additional Comments: * Mr. Snooks will hand deliver 12-2 11 AM His Ext is 2168

Figure 5.2. Completed computer time request sheet.

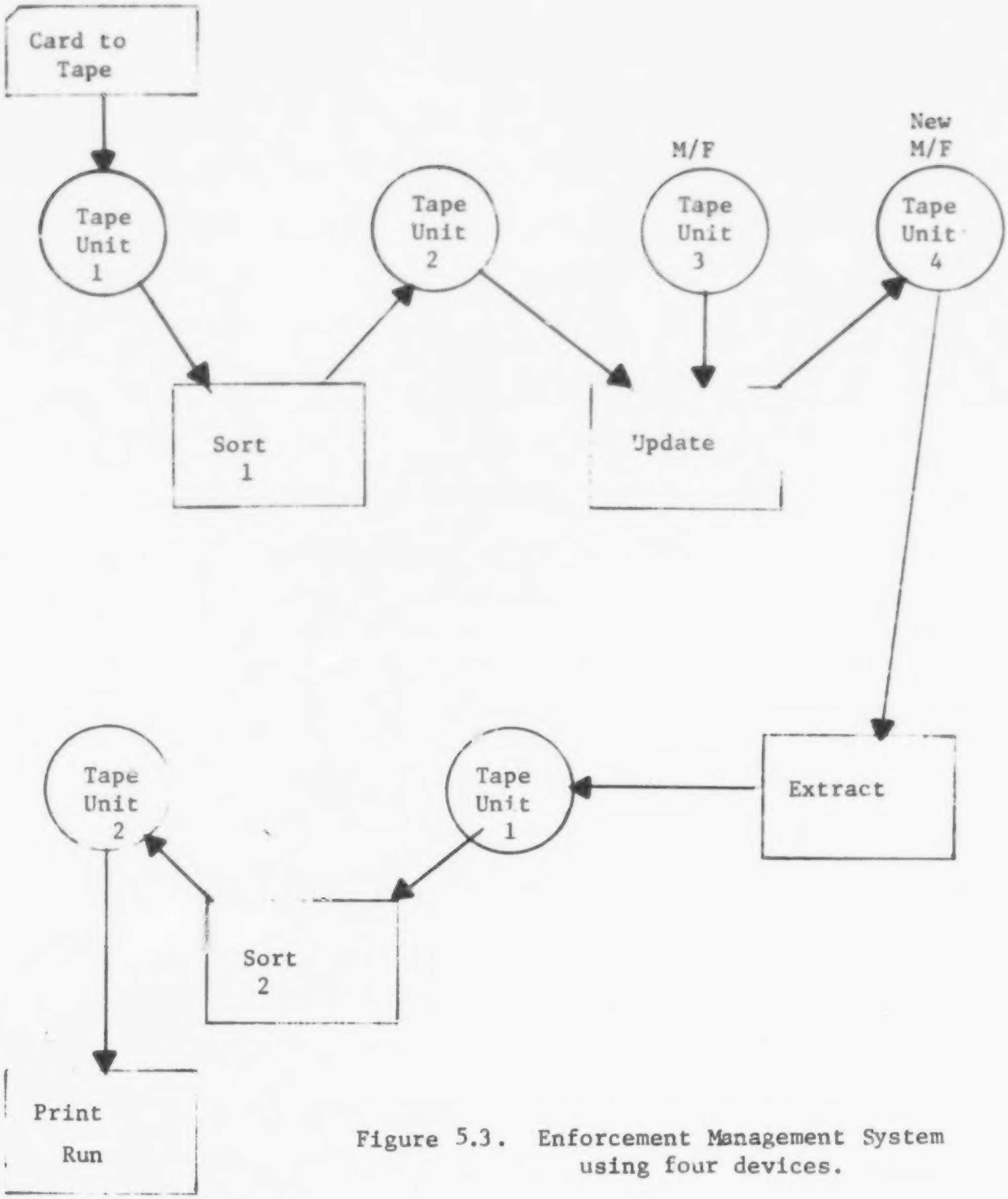

Card to Tape
Tape Unit 1
Sort 1
Tape Unit 2
M/F
Tape Unit 3
Update
New M/F
Tape Unit 4
Extract
Tape Unit 1
Sort 2
Tape Unit 2
Print Run

Figure 5.3. Enforcement Management System using four devices.

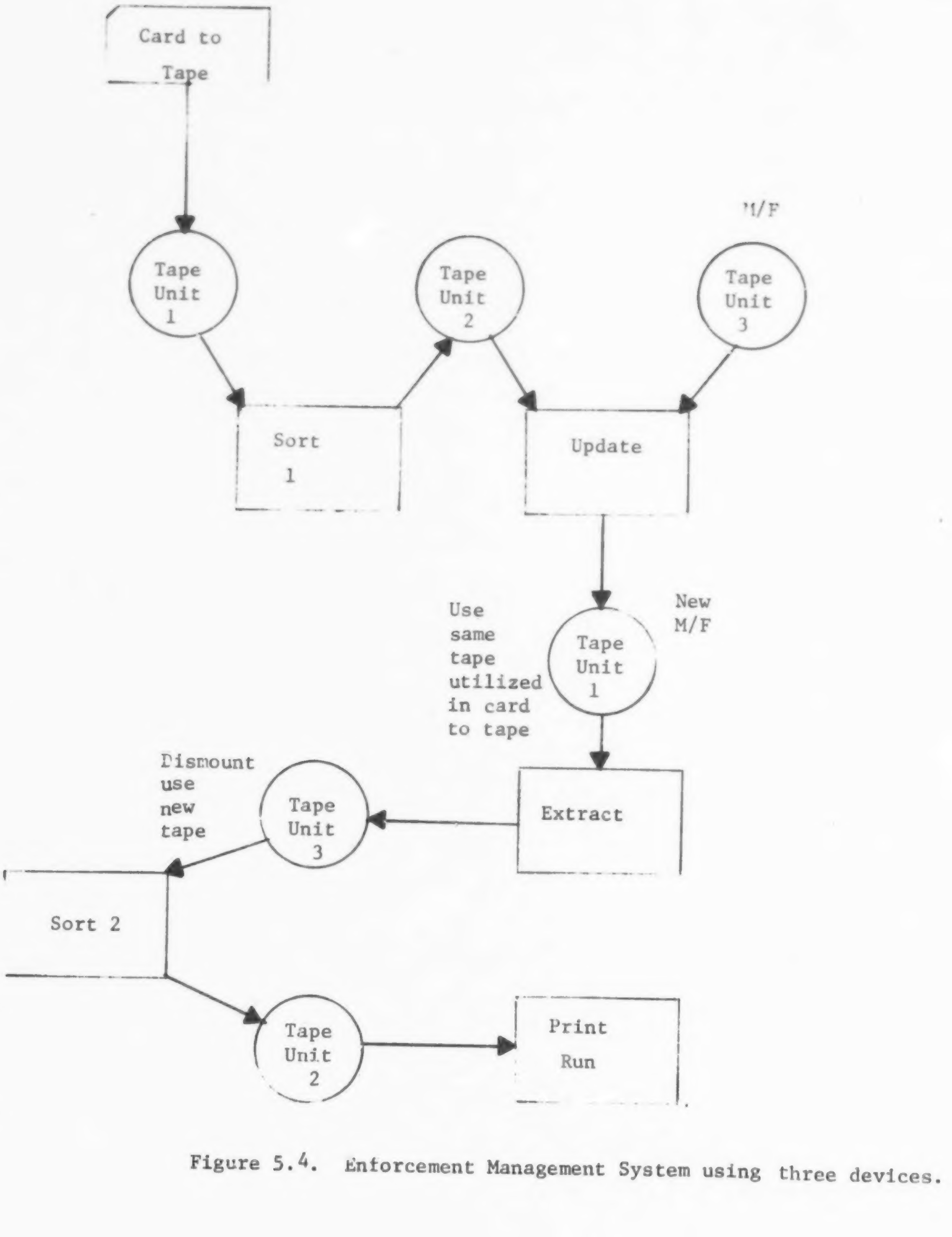

Card to Tape
M/F
Tape Unit 1
Tape Unit 2
Tape Unit 3
Sort 1
Update
Use same tape utilized in card to tape
New M/F
Tape Unit 1
Dismount use new tape
Tape Unit 3
Extract
Sort 2
Tape Unit 2
Print Run

Figure 5.4. Enforcement Management System using three devices.

5.2 JCL for DOS and OS

The Enforcement Management System was written for a data processing system with a minimum configuration of 40K byte CPU; Card Reader/Punch, Line Printer, and three magnetic tape drives. Optional hardware could include one disk pack for cataloging, one additional tape drive to eliminate mounting and dismounting of tapes during execution of the system. If four tape drives are not available, any combination of discs and tapes could be used.

Figure 5.3 graphically explains how four devices can be used.

Figure 5.4 depicts the standard three-tape system.

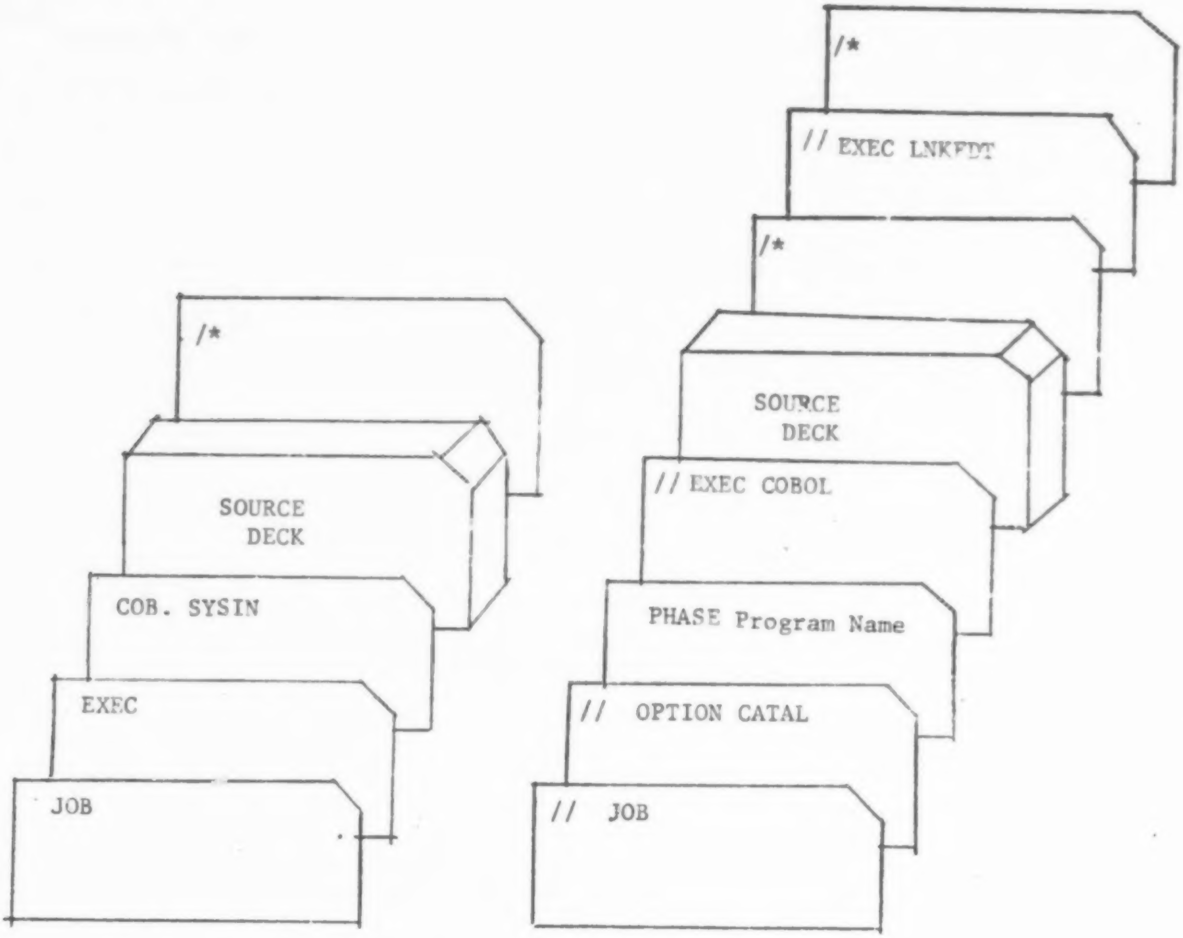
5.2.1 Cataloging

The most effective method of utilizing the Enforcement Management System is to first catalogue (place the programs in "executable" form on a disk pack) all three programs and then execute the system from a job stream. If this is undesirable or not possible, section 5.2.3 of this appendix explains the procedures necessary to compile and execute from an object deck. The main advantages of executing from a job stream are:

a. Fewer cards to be handled (reducing chances of losing a card)

b. Less computer time required because the same operations need not be done each cycle.

Figure 5.5 describes the JCL cards required to catalogue programs for both IBM 360 DOS and IBM 360 OS. The PHASE card (360 DOS) contains the name of the program as it will later be referred to. The


/*
// EXEC LNKEDT
/*
SOURCE DECK
// EXEC COBOL
PHASE Program Name
// OPTION CATAL
// JOB
/*
SOURCE DECK
COB. SYSIN
EXEC
JOB

360 OS

360 DOS

Figure 5.5. Cataloging Linked Programs.

EXEC card in the OS version contains the program name. In both computer environments this procedure will be initially repeated three times (once for each COBOL program), changing only the program name and source deck (original COBOL program card deck).

5.2.2 Executing from a Job Stream

Figures 5.6 and 5.7 show the necessary JCL for executing the Enforcement Management System from catalogued programs. Both exhibits utilize the four-device concept.

5.2.3 Operating System from Object Deck

The "compile, object deck and execute" method may be used on IBM 360 DOS/TOS or with other computer systems. For this reason the description following will be general and will require some modification on-site. Figure 5.8 depicts the JCL needed for the following operations: compile, get an object deck (machine instructions with unresolved addresses), link edit (resolve the unresolved addresses), and execute one COBOL program. This process would be repeated for each of the three programs. The sort parameters and the personnel and letter decks would be integrated with the object decks and the entire system executed (Figure 5.9).

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```
 // JOB X00280 DITTO                    PUT TRANSACTIONS CARDS ON TAPE
 // UPSI 1                              UNLABEL OUTPUT FILE
 // EXEC DITTO                          DITTO IS IBM UTILITY
 $$DITTO  CT    OUTPUT=SYS010           CARD TO TAPE PARM.
 $$DITTO  WTM   OUTPUT=SYS010           WRITE TAPE MARK AT END OF FILE
 $$DITTO  REW   OUTPUT=SYS010           REWIND OUTPUT TAPE
 $$DITTO  TP    INPUT=SYS010            PRINT OUTPUT TAPE
 $$DITTO  EOJ
 // JOB SORTINP      SORT INPUT MISC CARDS
 // ASSGN SYS002,X'183'                 INPUT SORT - OUTPUT FROM CARD-TAPE
 // ASSGN SYS001,X'180'                 OUTPUT SORTED TRANSACTIONS
 // EXEC DSORT                          STANDARD IBM SORT
  SORT FIELDS=(1,19,A),FORMAT=BI,FILES=1,SIZE=500
  RECORD TYPE=F,LENGTH=(80,,80)
  INPFIL VOLUME=1,BLKSIZE=(80,X),BYPASS,INPUT=T
  OUTFIL BLKSIZE=80,OUTPUT=T
  OPTION LABEL=(U,U)
  END
 // JOB EMS1        FIRST PROGRAM IN ENFORCEMENT SYSTEM UPDATE PROGRAM
 // ASSGN SYS007,X'180'       INPUT TRANSACTION FILE- OUTPUT FROM FIRST SORT
 // ASSGN SYS008,X'181'       INPUT OLD MASTER FILE
 // ASSGN SYS009,X'182'      OUTPUT NEW MASTER FILE
 // ASSGN SYS012,X'00C'      CONTROL CARD, PERSONNEL FILE
 // ASSGN SYS015,X'00E'       PRINTER
 // EXEC EMS1                EXEC PROGRAM FROM CORE-IMAGE LIBRARY
ZZXXXXXX      CONTROL CARD
 // JOB EMS2                            EXTRACT PROGRAM - SECOND IN E.M.S.
 // ASSGN SYS009,X'182'                 INPUT - NEW MASTER FILE FROM UPDATE
 // ASSGN SYS010,X'183'                 OUTPUT
 // EXEC EMS2                           EXEC PROGRAM FROM CORE-IMAGE LIBRARY
 // JOB SORTAPE     SECOND SORT, SORT EXTRACT FILE
 // ASSGN SYS001,X'180'     OUTPUT - PRINT TAPE
 // ASSGN SYS002,X'183'     INPUT - OUTPUT FROM EXTRACT RUN
 // EXEC DSORT              STANDARD IBM SORT
  SORT FIELDS=(1,49,A),FORMAT=BI,FILES=1,SIZE=500
  RECORD TYPE=F,LENGTH=(200,,200)
  INPFIL VOLUME=1,BLKSIZE=(2000,X),BYPASS,INPUT=T
  OUTFIL BLKSIZE=2000,OUTPUT=T
  OPTION LABEL=(U,U)
  END
 // JOB EMS3                            PRINT RUN - INPUT SORTED DATA
 // ASSGN SYS015,X'00E'                 PRINTER - CAN BE TAPE
 // ASSGN SYS012,X'00D'                 CARD PUNCH - ACTION CARDS
 // ASSGN SYS007,X'180'                 INPUT - OUTPUT FROM SORT
 // ASSGN SYS019,X'181'                 OUTPUT SEPARATE LETTER FILE
 // ASSGN SYS011,X'00C'                 CARD READER - LETTER DECK
 // EXEC EMS3                           EXEC FROM CORE-IMAGE LIBRARY
 // JOB LTPS                            WRITE LETTER FILE TO PRINTER
 // ASSGN SYS004,X'181'                 INPUT LETTER FILE
 // ASSGN SYS005,X'00E'                 OUTPUT PRINTER
 // UPSI 10000000                       NO LABEL CHECKING
 // EXEC TPPR                           STANDARD TAPE TO PRINTER UTILITY
 // UTP TL,FF,A=(133,133),B=(132),IR,OC,SC,PN,R1    USE IMBEDDED CONTROLS
 // END
```

Figure 5.6. Execute IBM 360 DOS EMS Version from catologued program

```
//TRCEMS JOB (9224250,A,1),LMH,TIME=1,CLASS=A,REGION=100K
//      EXEC RINGIN,PARM=006561
//JOBLIB DD DSN=USER.LINKLIB,DISP=SHR
//            EXEC PGM=IEBGENER
//SYSPRINT    DD   SYSOUT=A
//SYSIN       DD   DUMMY
//SYSUT2 DD DSN=TRANS,UNIT=TAPE,LABEL=(,SL),DISP=(,PASS),
// VOL=SER=006561,DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//SYSUT1      DD    *

               TRANSACTION FILE

//STEP1       EXEC SORT
//SORT.SORTIN DD UNIT=TAPE,DSN=TRANS,VOL=SER=006561,LABEL=(,SL),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=800),DISP=(OLD,PASS)
//SORT.SORTOUT DD DSN=TRANIPT,UNIT=2314,VOL=SER=RTCC02,DCB=(RECFM=FB,
//        LRECL=80,BLKSIZE=80),DISP=OLD
//SORT.SORTWK01 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTWK02 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTWK03 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTMODS DD UNIT=SYSDA,SPACE=(TRK,(10,3))
//SORT.SYSIN  DD    *
 SORT FIELDS=(1,19,A),FORMAT=CH
 END
/*
//UPT         EXEC PGM=TRCUPT
//SYS007 DD DSN=TRANIPT,DISP=OLD,UNIT=2314,VOL=SER=RTCC02
//SYS008 DD DSN=A,VOL=SER=TRC001,LABEL=(2,NL),UNIT=DDTAPE,DISP=OLD,
// DCB=(DFN=2,LRECL=180,BLKSIZE=1800,RECFM=FB)
//SYS009 DD DSN=SYS009,VOL=SER=006561,LABEL=(1,SL),UNIT=TAPE,
// DISP=(,PASS)
//SYS015      DD   SYSOUT=A
//SYS010      DD    *

                      PERSONNEL DECK
/*
//EXT         EXEC PGM=TRCEXT
//SYS009      DD    DSNAME=SYS009,VOLUME=SER=006561,LABEL=(,SL),
//           UNIT=TAPE,DISP=OLD
//SYS010 DD DSN=+EXTRCT,
//         DISP=(NEW,PASS),UNIT=SYSDA,SPACE=(200,(500,5))
/*
//SORT2       EXEC SORT
//SORT.SORTIN DD DSN=+EXTRCT,UNIT=SYSDA,DCB=(RECFM=FB,LRECL=200,
//          BLKSIZE=2000),DISP=(OLD,DELETE)
//SORT.SORTOUT DD DSN=+PRINTP,UNIT=SYSDA,DCB=(RECFM=FB,LRECL=200,
//          BLKSIZE=2000),DISP=(NEW,PASS),SPACE=(2000,(500,5))
//SORT.SORTWK01 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTWK02 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTWK03 DD  UNIT=SYSDA,SPACE=(TRK,(120),,CONTIG)
//SORT.SORTMODS DD UNIT=SYSDA,SPACE=(TRK,(10,3))
//SORT.SYSIN    DD *
 SORT FIELDS=(1,49,A),FORMAT=CH
 END
/*
//PRT         EXEC PGM=TRCPTR
//SYS007 DD DSN=+PRINTP,UNIT=SYSDA,DCB=(RECFM=FB,LRECL=200,
//           BLKSIZE=2000),DISP=(OLD,DELETE)
//SYS015      DD   SYSOUT=A
//SYS012      DD   SYSOUT=B
//SYS019 DD DSN=LTRS,UNIT=TAPE,LABEL=(,SL),DISP=(,PASS),
//    VOL=SER=005661,DCB=(RECFM=FM,LRECL=133,BLKSIZE=133)
//SYS011      DD    *

              LETTER DECK IN AGENCY, LETTER TYPE ORDER
/*
//            EXEC PGM=IEBPTPCH
//SYSPRINT    DD   SYSOUT=A
//SYSUT1      DD   UNIT=TAPE,LABEL=(,SL),VOLUME=SER=005661,
//    DISP=(OLD,KEEP),DCB=(RECFM=FB,LRECL=133,BLKSIZE=133)
//SYSUT2      DD   SYSOUT=A
//SYSIN       DD    *
          PRINT    PREFORM=M
/*
```

Figure 5.7. Execute EMS from 360 OS catalogued programs.

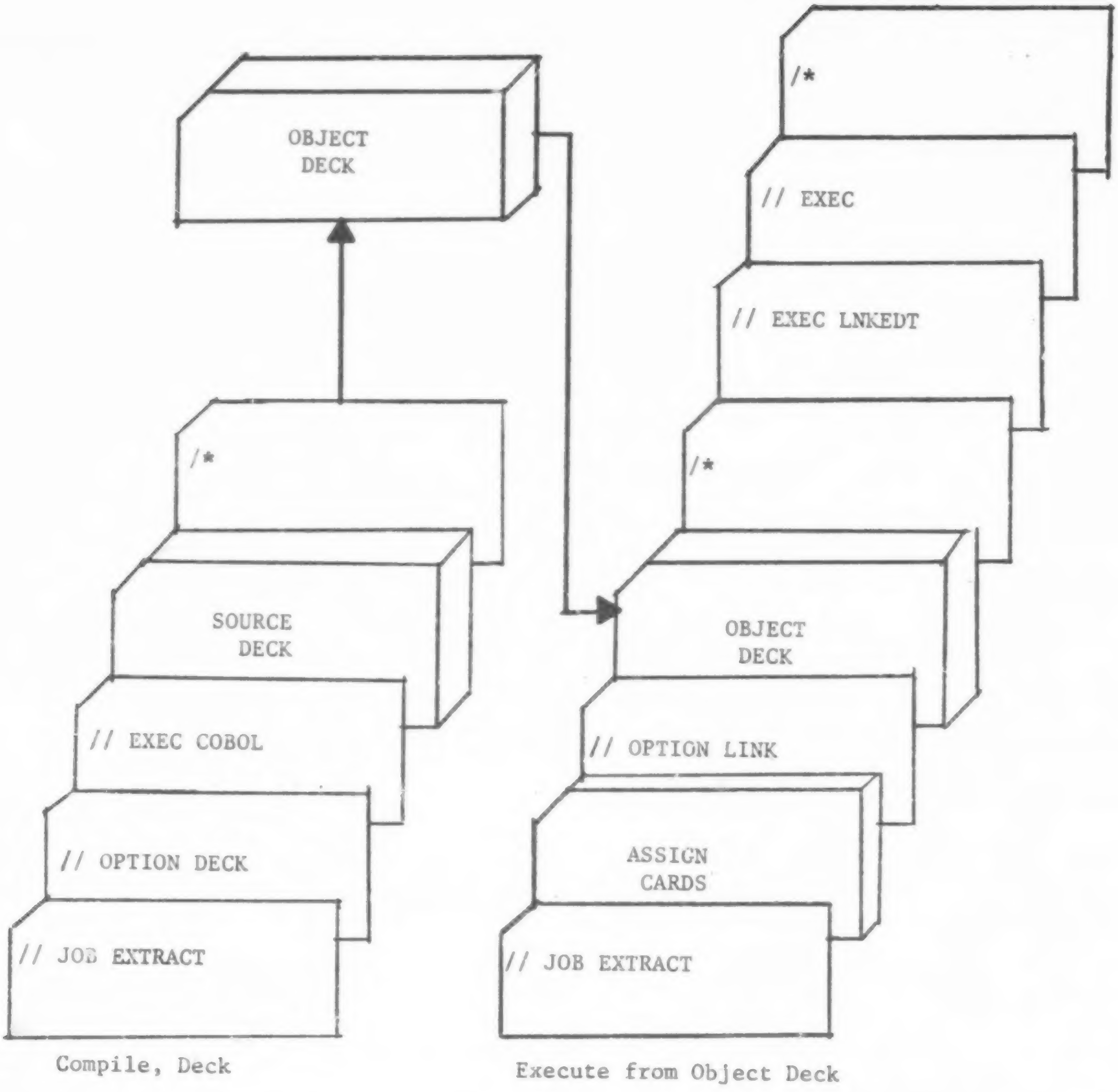

OBJECT DECK
/*
SOURCE DECK
// EXEC COBOL
// OPTION DECK
// JOB EXTRACT
Compile, Deck
/*
// EXEC
// EXEC LNKEDT
/*
OBJECT DECK
// OPTION LINK
ASSIGN CARDS
// JOB EXTRACT
Execute from Object Deck

Figure 5.8. Compile, Deck, Link, Execute.

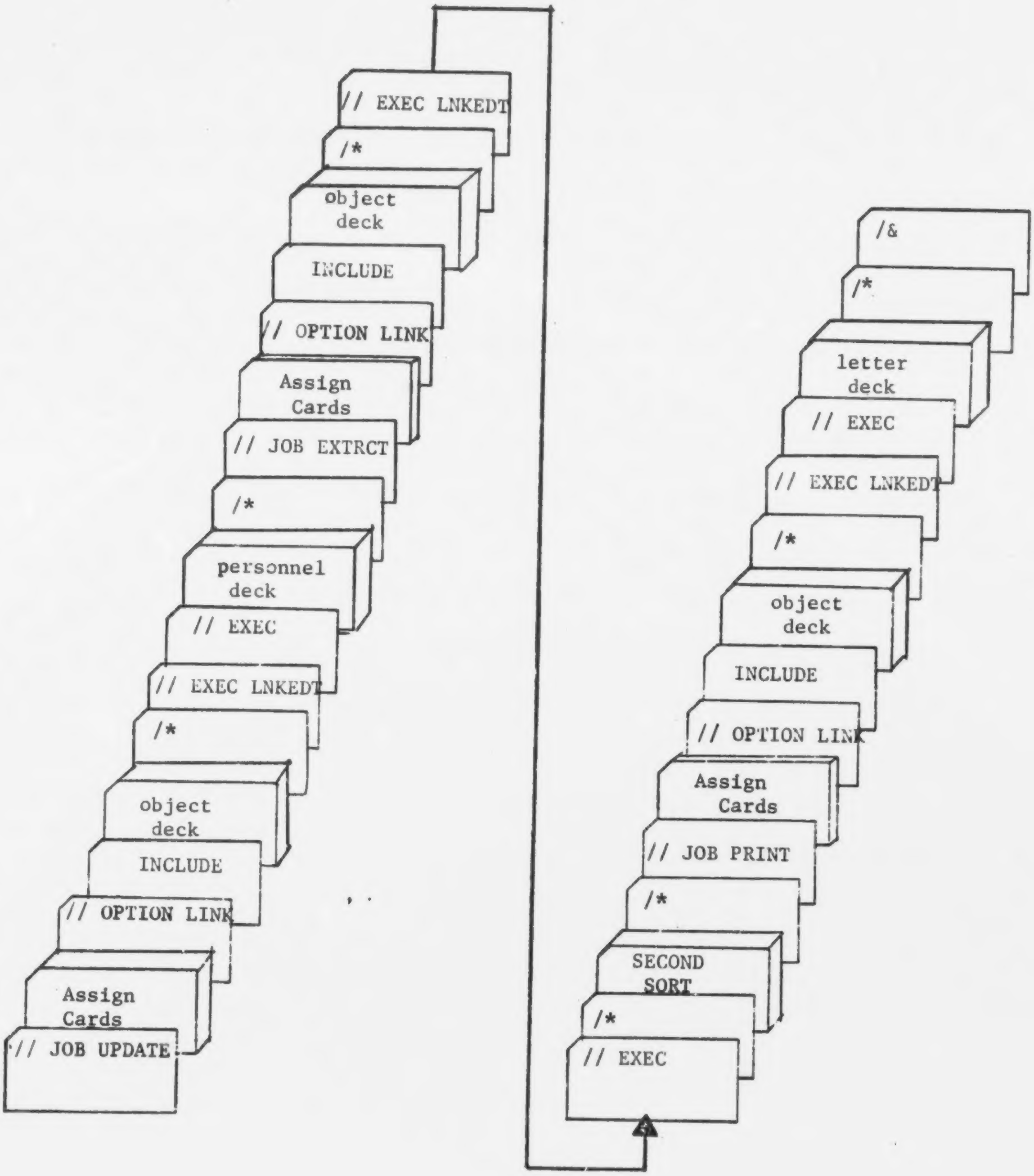

// JOB UPDATE
Assign Cards
// OPTION LINK
INCLUDE
object deck
/*
// EXEC LNKEDT
// EXEC
personnel deck
/*
// JOB EXTRCT
Assign Cards
// OPTION LINK
INCLUDE
object deck
/*
// EXEC LNKEDT
// EXEC
/*
SECOND SORT
/*
// JOB PRINT
Assign Cards
// OPTION LINK
INCLUDE
object deck
/*
// EXEC LNKEDT
// EXEC
letter deck
/*
/&

Figure 5.9.

Execute Enforcement Management System from Object decks.

6.0 MASTER FILE RECORD LAYOUTS

The data base is maintained on magnetic tape (master file) and consists of fixed length blocked (10 to a block) records.

The file segments are as listed below. They are 180 characters in length and are in character format for ease in maintenance. Fields are neither packed nor in hexadecimal notation.

Record Type 1 (code 20)	Source Header Record
Record Type 2 (code 21)	Additional Source Data
Record Type 3 (code 34)	Emission Point Header
Record Type 4 (code 35)	Additional Point Data
Record Type 5 (code 36)	Action Header
Record Type 6 (code 37)	Additional Action Data

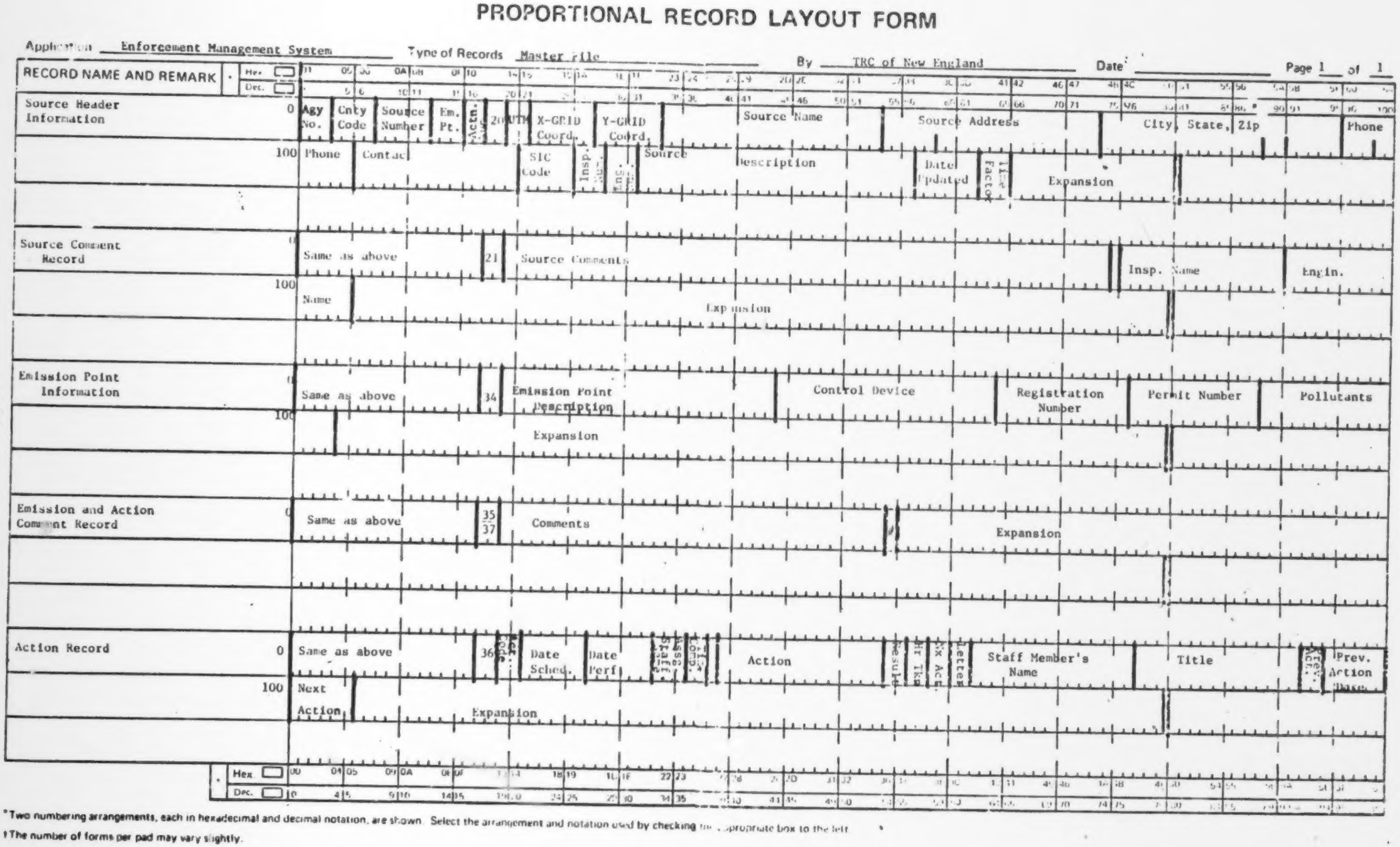
The file is in sequence as shown in the record sequence key diagram, attached. The key fields are:

Agency Code
County Code
Source Number
Emission Point
Action Number
Record Type

Source and Emission Point Records	Agency Code	County Code	Source No.	Emission Point Number (000)for Source Rcds.	Blank (zeros)	Record Type	Record Codes 20= Source Header 21= Additional Source Information 34= Emission Point Header 35= Additional Emission Point
	3	4	5	3	2	2	
	1 3	4 7	8 12	13 15	16 17	18 19	

Action Records	Agency Code	County Code	Source Number	Emission Point Number	Action Number	Record Type	Record Codes 36= Action Header 37= Additional Action
	3	4	5	3	2	2	
	1 3	4 7	8 12	13 15	16 17	18 19	

Figure 6.1.
RECORD SEQUENCE KEY.



PROPORTIONAL RECORD LAYOUT FORM

Application Enforcement Management System Type of Records Master File By TRC of New England Date Page 1 of 1

RECORD NAME AND REMARK	• Hex. ☐ Dec. ☐	
Source Header Information	0	Agy No. | Cnty Code | Source Number | Em. Pt. | Actn. | 20 | UTM | X-GRID Coord. | Y-GRID Coord. | Source Name | Source Address | City, State, Zip | Phone
	100	Phone | Contact | SIC Code | Insp. | Ins. | Source Description | Date Updated | Time Factor | Expansion
Source Comment Record	0	Same as above | 21 | Source Comments | Insp. Name | Engin.
	100	Name | Expansion
Emission Point Information	0	Same as above | 34 | Emission Point Description | Control Device | Registration Number | Permit Number | Pollutants
	100	Expansion
Emission and Action Comment Record	0	Same as above | 35 37 | Comments | Expansion
Action Record	0	Same as above | 36 | Act. Code | Date Sched. | Date Perf | Staff | Ass | Comp. | Action | Result | Hr Tkn | Nx Act. | Letter | Staff Member's Name | Title | Prev. Act. | Prev. Action Date
	100	Next Action | Expansion

*Two numbering arrangements, each in hexadecimal and decimal notation, are shown. Select the arrangement and notation used by checking the appropriate box to the left.

†The number of forms per pad may vary slightly.

Figure 6.2. Record Layout for EMS Master File.

7.0 CONTROL CARD LAYOUT

A control card must be prepared for each run cycle. The layout is shown on the attached layout sheet.

The control card is used to:

1. Enter today's date into the system. The date is entered in columns 13 through 18 in month - day - year format, such as 10-01-71 for Oct. 1st, 1971.
2. Check that the correct master file is being used as input to the series. The old serial number from the last run is punched into columns 72 through 77. The serial number begins with 000000, and is updated by one number each cycle. The current serial number is printed on the edit and error list.
3. Determine which reports are to be prepared this cycle. Any character in the correct column causes the report to be printed; a blank omits the report. The columns are:

Column 3.	Source Registration Report
4.	Action Summary Report
5.	Source Action Summary
6.	Overdue Action Report
7.	Geographic Locator Report
8.	Future Action Summary
9.	Letters, Permits, etc.

4. Enter dates for the selection of actions for the action summary report. These dates provide starting and ending dates for the period to be covered in the report. The start date is punched in columns 19 through 24, and the end date in columns 25 through 30.

The phrase "Enforcement Management File Input Serial" is punched in columns 31 through 71, to serve as run identification.

In the level 3 (advanced) system, the current week number is entered in columns 11 through 12, to indicate to the scheduling routines the week being processed. This week number is from 1 to 52, starting with 1 at the beginning of the year.

DATA CARD LAYOUT

CARD FORM NO. 5081 TITLE Control Card FILE IDENT.

PROGRAM TITLE Enforcement Management System

COMMENTS

Column 3. Source Registration Report 8. Future Action Summary

4. Action Summary Report 9. Letters, permits, etc.

5. Source Action Summary Report

6. Overdue Action Report

7. Geographic Locator Report

ZZ	REPORT SELECTION	WEEK NO. (LV. 3 ONLY)	RUN DATE MO. DY. YR.	START DATE (ACTION SUMMARY)	END DATE (ACTION SUMMARY)	SYSTEM IDENT. ENFORCEMENT MANAGEMENT FILE INPUT SERIAL	RUN SERIAL NUMBER

8.0 PERSONNEL AND LETTER CARD LAYOUT

A letter card deck is required to enter the standarized letters and permits into the system. One card in the deck equals one line on the letter.

These letters are maintained manually and must be in sequence. The last card of each letter must be numbered 999. This is the signature, which will be printed on the letter (left-justified starting in column 17). For coding line numbers (columns 8 to 10) on letter cards, it is suggested that the numbers start at 010, and increment by ten (010): 010, 020, 030, etc. This will enable additional cards (print lines) to be added in the future without resequencing cards. If a blank line(s) is required within the body of the letter a card(s) must be provided bearing agency, letter type, and line number (the remainder of the card will be blank). See Figure 8.1.

Letter headings, including title, source address, permit information, etc., are automatically printed by the print program.

A personnel card deck is also required for each run. This deck is made up of one card for each staff member expected to utilize the system. It need not be in sequence by agency and employee number. The first digit of the employee number represents the section number.

Columns 39 to 66 of the personnel card are used only in the level 3 (advanced) system. In the advanced system, the deck is repunched each cycle. Changes may be made to the scheduled hours fields by repunching the cards. For example, if a staff member is going to be away, a "30" may be punched for that week, and the system will not assign any actions for that period. See Figure 8.2.

Figure 8.1. Letter Card.

DATA CARD LAYOUT

CARD FORM NO. 5081 TITLE Letter Card FILE IDENT.

PROGRAM TITLE Enforcement Management System

COMMENTS

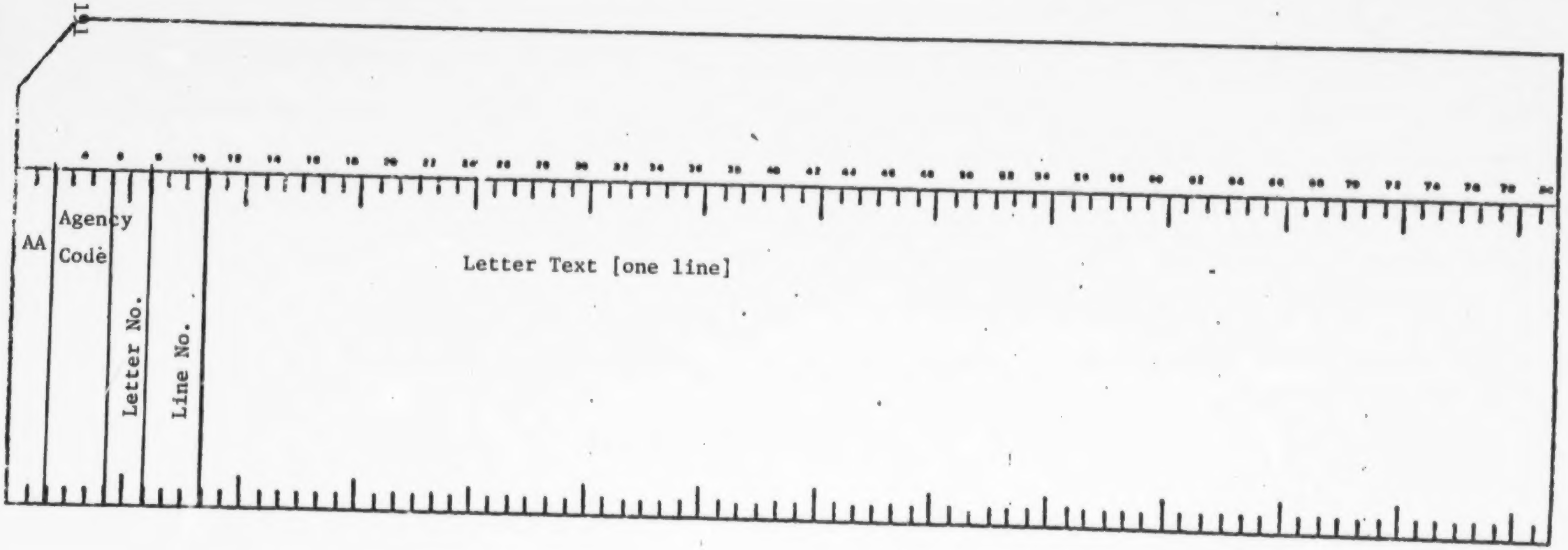

AA
Agency Code
Letter No.
Line No.
Letter Text [one line]

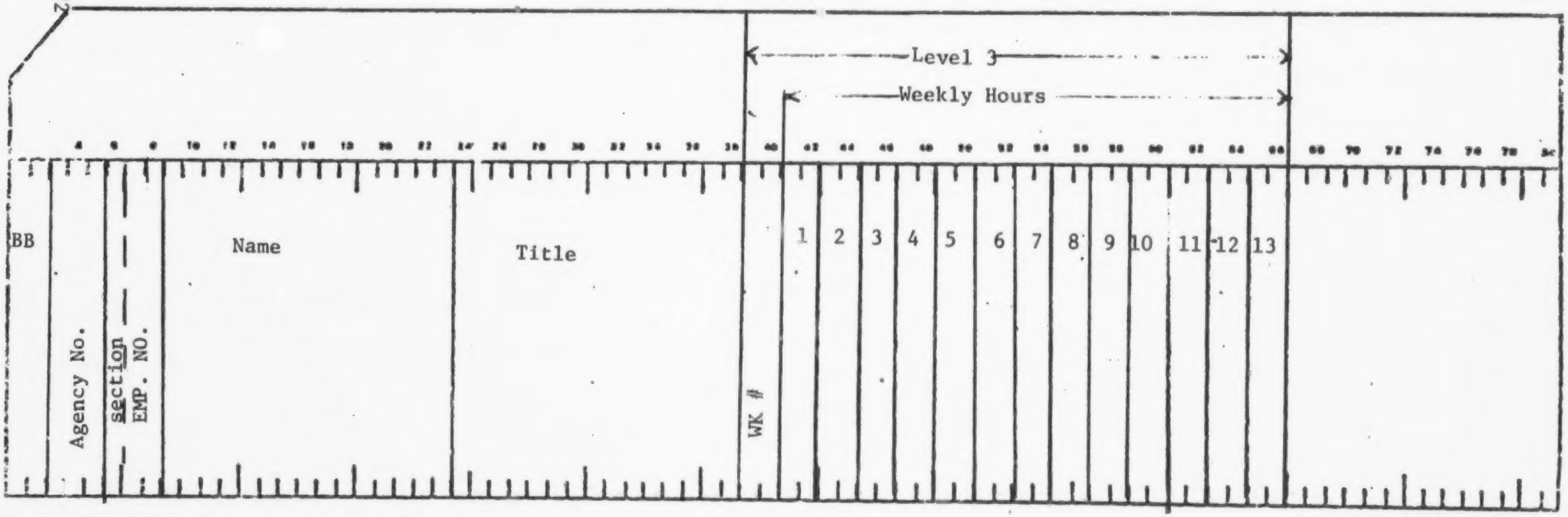
Figure 8.2. Personnel Schedule Card.

DATA CARD LAYOUT

CARD FORM NO. 5081 TITLE Personnel Schedule Card FILE IDENT.

PROGRAM TITLE Enforcement Management System

COMMENTS


Level 3
Weekly Hours
BB
Agency No.
section
EMP. NO.
Name
Title
WK #
1
2
3
4
5
6
7
8
9
10
11
12
13

9.0 KEYPUNCH INSTRUCTIONS

The following description of transactions for the Enforcement Management System is included to assist in keypunch training. Input is considered to be punch cards, but these instructions will work equally well with either a key-disk or key-tape system if card-image format is used.

SOURCE DATA CARDS

Card Column

1. 1- 3 Agency Code must be present. Numeric right justified, zero filled.

   ex. 001, 010, 321

2. 4- 7 County Code must be present. Numeric right justified, zero filled.

   ex. 0009, 0013, 0169

3. 8-12 Source Number must be present. Numeric, right justified, zero filled.

   ex. 00004, 00601

   13-17 (not shown) will always be zeros for card codes 1, 2, 3, 4 (see below).

4. 18 Card Code must be present. Numeric with a range of 1 to 8 (0 and 9 are not valid).

5. 19-20 UTM Zone is optional. Must be two (2) numeric digits (otherwise blanks).

6. 21-26 EW-Grid Coordinates is optional. If used should be numeric, right justified, zero filled.

   ex. 000120

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JOB NAME Source Card - Code #1	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY	DUE IN TIME	DUE IN DATE	DUE OUT TIME	DUE OUT DATE	ESTIMATED VOLUME	EST. TIME HOURS	EST. TIME TENTHS
☐ DAILY ☐ WEEKLY ☐ BI-WEEKLY ☐ SEMI-MONTHLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUAL ☐ OTHER							

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON	SPECIAL FEATURES USED
☐ PROGRAM UNIT ☐ PRINT 1 2 ☐☐ PROGRAM SELECT ☐ LEFT ZERO PRINT ☐ AUTO FEED CK PCH ☐☐ SELF CHECK NO. ☐ AUTO SKIP-AUTO DUPL (VER) INS ST ☐☐ CARD INSERT	☐ CARD CORRECTION ☐ AUXILIARY DUPLICATE (VERIFY) ☐ CARD INSERTION ☐ SELF CHECK NO. ☐ AUTO LEFT ZERO ☐ SELF CHECK NO. GENERATOR ☐ ALTERNATE PROGRAM ☐ VARIABLE LENGTH FEED ☐ HI SPEED SKIP ☐ INTERSPERSED GANG PUNCH
SOURCE DOCUMENTS USED:	DISPOSITION OF CARDS:
RECEIVED FROM:	DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS FROM	COLUMNS THRU	COLUMNS TOTAL	REMARKS
Agency Code ①		1	3	3	Numeric
County Code ②		4	7	4	Numeric
Source No. ③		8	12	5	Numeric
		13	17		Zeros
Card Code ④		18	18	1	Always 1
UTM Zone ⑤		19	20	2	Numeric or Blank
EW Grid Coord ⑥		21	26	6	Numeric or Blank
NS Grid Coord ⑦		27	32	6	Numeric or Blank
Source Name ⑧		33	52	20	Alpha left justified
Street No. ⑨		53	57	5	Alpha right justified leading spaces
Street Name ⑩		58	72	15	Alpha
Time Factor ⑪		73	75	3	Numeric x.xx
Update Code ⑫		80	80	1	N C or D
TOTAL KEY STROKES PER CARD -					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
•LEFT ZERO	LZ

Date: ____________

Section________ Page ____

① Agency Code

SOURCE DATA ENTRY FORM

SOURCE DATA FORM

② County Code

③ Source No.

④ Card Code

Coordinates

UTM Zone (if used) ⑤

⑥ EW

⑦ NS

Source Name ⑧

Street ⑨ Number ⑩ Name

Time Factor ⑪

Update Code ⑫ N, C, or D

Card Code 2 ④

⑬ City

⑭ State

⑮ Zip Code

⑯ Area Code Telephone

⑰ Contact

⑱ SIC Code

⑲ Agency Inspector No.

⑳ Agency Engineer No.

Update Code ⑫ N, C, or D

Card Code 3 ④

㉑ Source Description

Card Code ④ ㉒ Line Code (Leave blank except "C")

Update Code ⑫ N, C, or D

Comments:

㉓

7.	27-32	NS-Grid Coordinate is optional. See entry number 6.
8.	33-52	Source Name is optional. If used should be alphanumeric, left justified.
9.	53-57	Street Number is optional. If used should be numeric, right justified, space filled. ex.ƀƀƀ22 not 00022
10.	58-72	Street Name is optional. If used should be alphanumeric, left justified.
11.	73-75	Time Factor is optional. If used should be three numeric digits.
12.	80	Update Code must be present. Only valid entry is N, C or D.

Second Card of Source Data. Columns 1 thru 17 should be picked up from first card, either duplicated or re-entered.

13.	19-33	City is optional. If used must be alphanumeric, left justified.
14.	34-35	State (abreviation) is optional. When used should be alphebetic.
15.	36-40	Zip Code is optional. When used should be five (5) numeric digits.
16.	41-50	Telephone Number is optional. First three digits (41 to 43) is the area code, followed by local phone number with no imbedded spaces or hyphens ex. 2025274101

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JOB NAME	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE
Source Card - Code 2					

FREQUENCY
☐ DAILY ☐ WEEKLY ☐ BI-WEEKLY ☐ SEMI-MONTHLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUAL ☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON

☐ PROGRAM UNIT
1 2 ☐☐ PROGRAM SELECT
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
CK PCH ☐☐ SELF CHECK NO.
INS ST ☐☐ CARD INSERT

SPECIAL FEATURES USED

☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Header Data 1-5		1	17		Dup from Code 1 card
Card Code ④		18	18	1	Always 2
City ⑬		19	33	15	Alpha
State ⑭		34	35	2	Alpha
Zip ⑮		36	40	5	Numeric
Telephone ⑯		41	50	10	Numeric
Contact ⑰		51	65	15	Alpha
Source Code (SIC) ⑱		66	70	5	Numeric or Blank
Assigned Inspect Code ⑲		71	73	3	Numeric or Blank
Assigned Engr. No. ⑳		74	76	3	Numeric or Blank
Update Code ⑫		**80**	**80**	**1**	**N C or D**
TOTAL KEY STROKES PER CARD→					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ____________

Section______ Page______

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JOB NAME Source Card - Code 3	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY
☐ DAILY
☐ WEEKLY
☐ BI-WEEKLY
☐ SEMI-MONTHLY
☐ MONTHLY
☐ QUARTERLY
☐ ANNUAL
☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
1 2 ☐☐ PROGRAM SELECT
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
CK PCH ☐☐ SELF CHECK NO.
INS ST ☐☐ CARD INSERT

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS FROM	COLUMNS THRU	COLUMNS TOTAL	REMARKS
Header Data 1-3		1	17		Dup from Code 1 card
Card Code ④		18	18	1	Always 3
Source Description ㉑		19	43	25	Alpha
Update Code ⑫		80	80	1	N C or D
TOTAL KEY STROKES PER CARD →					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ____________

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17.	51-65	Contact is optional. Alphanumeric left justified.
18.	66-70	SIC Code is optional. Numeric, right justified, zero filled. ex. 00022, 02460
19.	71-73	Agency Inspector Number is optional. First character can be alphabetic, second and third are numeric. ex. 121, N29.
20.	74-76	Agency Engineer Number is optional. First character can be alphabetic, second and third are numeric. ex. E09, G24.

Third Card of Source Data. Columns 1 thru 17 should be picked up from first card, either duplicated or re-punched.

21.	19-43	Source Discription is optional. Alphanumeric left justified.

Fourth Card of Source Data. Columns 1 thru 17 should be picked up from previous card, either duplicated or re-punched.

22.	19	Line Code must be present. If Update Code is "C", this field should already be coded. Otherwise operator must insert correct numeric value. First card will be 1, next 2, etc. See below for comments description.
23.	20-79	Comments must be present if card code 4 is used. Comments are free-formed (starting at column 20 and continuing on) with run-overs to next card, in which case the line code must be incremented. Words should not be broken (hyphenated) but brought over to next comment card. Maximum nine cards.

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JOB NAME Source Card - Code 4	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY
☐ DAILY
☐ WEEKLY
☐ BI-WEEKLY
☐ SEMI-MONTHLY
☐ MONTHLY
☐ QUARTERLY
☐ ANNUAL
☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
1 2 ☐☐ PROGRAM SELECT
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
CK PCH ☐☐ SELF CHECK NO.
INS ST ☐☐ CARD INSERT

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Header Data 1-3		1	17		Dup from Code 1 card
Card Code ④		18	18		Always 4
Comments Line Number ㉒		19	19	1	Numeric
Comments ㉓		20	74	55	Alpha
Update Code ⑫		80	80		N C or D
TOTAL KEY STROKES PER CARD—					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
•LEFT ZERO	LZ

Date: ____________

Section________ Page______

①
Agency Code

SOURCE DATA ENTRY FORM

EMISSION POINT ENTRY FORM

② County Code

③ Source No.

5 ④ Card Code

㉔ Emission Point No.

㉕ Description

㉖ Control Device

Updatd Code ⑫
N, C, or D

㉗ Pollutants

6 ④ Card Code

㉒ Line Code (Lv Blank Except C)

Comments ________________________________

㉘

㉙ Registration Number

㉚ Permit Number

Update Code ⑫
N, C, or D

Emission Point data card. Entries 1, 2, 3 should be duplicated from Source Data cards or re-entered.

24. 13-15 Emission Point must be present. Three numeric digits 000 to 999.

16-17 (not shown) Must be zeros for Card Code 5 and 6.

25. 19-43 Description is optional. Alphanumeric, left justified.

26. 44-63 Control Device is optional. Alphanumeric, left justified.

27. 64-79 Pollutants is optional. Alphanumeric, left justified.

Emission Point Comment record. Entries 1, 2, 3, 24 should be duplicated from previous card or re-entered.

28. 20-54 Comments must be present if Card Code is 6 or 8. All comments are free-flowing and can continue on next card if too much data is provided. When comments are continued on another card, line code must be incremented. Words may not be split (hyphenated) but should be carried over to next card. Maximum 9 cards.

29. 55-66 Registration Number is optional. Alphanumeric or numeric, left justified.

ex. AB246, 32167980

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CARD PUNCHING OR VERIFYING INSTRUCTIONS

JOB NAME EPt. Card - Card 5	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY
☐ DAILY
☐ WEEKLY
☐ BI-WEEKLY
☐ SEMI-MONTHLY
☐ MONTHLY
☐ QUARTERLY
☐ ANNUAL
☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
☐☐ PROGRAM SELECT (1, 2)
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
☐☐ SELF CHECK NO. (CK, PCH)
☐☐ CARD INSERT (INS, ST)

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Header Data 1-5		1	12		Dup from Code-1 card
E. Pt. No. ㉔		13	15	3	Numeric
		16	17	2	Zeros
Card Code ④		18	18	1	Always 5
Description ㉕		19	43	25	Alpha
Control Device ㉖		44	63	20	Alpha
Pollutants ㉗		64	79	16	Alpha
Update Code ⑫		80	80	1	N C or D
TOTAL KEY STROKES PER CARD–					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ____________

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CARD PUNCHING OR VERIFYING INSTRUCTIONS

JOB NAME	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE
E-PT Card - Card 6					

FREQUENCY
☐ DAILY ☐ MONTHLY
☐ WEEKLY ☐ QUARTERLY
☐ BI-WEEKLY ☐ ANNUAL
☐ SEMI-MONTHLY ☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
☐ PRINT
1 2 ☐☐ PROGRAM SELECT
☐ LEFT ZERO PRINT
☐ AUTO FEED
CK PCH ☐☐ SELF CHECK NO.
☐ AUTO SKIP-AUTO DUPL (VER)
INS ST ☐☐ CARD INSERT

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ AUXILIARY DUPLICATE (VERIFY)
☐ CARD INSERTION
☐ SELF CHECK NO.
☐ AUTO LEFT ZERO
☐ SELF CHECK NO. GENERATOR
☐ ALTERNATE PROGRAM
☐ VARIABLE LENGTH FEED
☐ HI SPEED SKIP
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Header Data 1, 2, 3, 24		1	17		Dup from Code 5 card
Card Code ④		18	18	1	Always 6
Comments Line Number ㉒		19	19	1	Numeric
Comments ㉘		20	54	35	Alpha
Registration Number ㉙		55	66	12	Alpha/ Numeric
Permit Number ㉚		67	78	12	Alpha /Numeric
Update Code ⑫		80	80	1	N,C or D
TOTAL KEY STROKES PER CARD–					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ______________ Section__________ Page ______

30.	67-78	Permit Number is optional. Alphanumeric or numeric, left justified. ex. PT324, 67831

Manual Action Card. Entries 1, 2, 3, 24 must be keypunched before following data can be entered.

31.	16-17	Action Number must be present. Two numeric digits 00 to 99.
32.	52-53	Action Type is optional. Two numeric digits. If one digit is provided it should be right justify, preceded with a zero. ex. 2 is given, 02 is keypunched.
33.	54-59	Action Date is optional. Numeric in month, day, year format.
34.	60-65	Next Action Date is optional. Numerics in month, day, year format
35.	66-68	Staff Number is optional. First character may be alphia, second and third are numeric. ex. I21, E46, 232
36	69-70	Action Results is optional. Two numeric digits.
37.	71-72	Hours Taken is optional. Two numeric digits.
38.	73-74	Next Action is optional. Two numeric digits.
39.	75-76	Estimated Hours to complete is optional. Two numeric digits.
40.	77-78	Send Letter Number to Source is optional. Two numeric digits.

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CARD PUNCHING OR VERIFYING INSTRUCTIONS

JOB NAME Action Card - Card 7	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY
☐ DAILY
☐ WEEKLY
☐ BI-WEEKLY
☐ SEMI-MONTHLY
☐ MONTHLY
☐ QUARTERLY
☐ ANNUAL
☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.
CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
1 2
☐☐ PROGRAM SELECT
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
CK PCH
☐☐ SELF CHECK NO.
INS ST
☐☐ CARD INSERT

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:
DISPOSITION OF CARDS:
RECEIVED FROM:
DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Agency Code ①		1	3	3	Numeric
County Code ②		4	7	4	Numeric
Source No. ③		8	12	5	Numeric
E. Point No. ㉔		13	15	3	Numeric
Action No. ㉛		16	17	2	Numeric
Card Code ④		18	18	1	Always 7
Action Code ㉜		52	53	2	Numeric or Blank
Date Performed ㉝		54	59	6	Numeric or Blank
Date Schedule ㉞		60	65	6	Numeric or Blank
Staff Member Number ㉟		66	68	3	Alpha
Results ㊱		69	70	2	Numeric
HRS taken ㊲		71	72	2	Numeric
Next Action ㊳		73	74	2	Numeric
Hrs. to complt. ㊴		75	76	2	Numeric
Send Letter ㊵		77	78	2	Numeric
.Update Code ④		80	80	1	N C or D

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ____________

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CARD PUNCHING OR VERIFYING INSTRUCTIONS

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JOB NAME Action Card - Card 8	JOB NO.	CONTROL PANEL NO.	OPERATION NAME	OP. CODE	MACH. TYPE

FREQUENCY
☐ DAILY
☐ WEEKLY
☐ BI-WEEKLY
☐ SEMI-MONTHLY
☐ MONTHLY
☐ QUARTERLY
☐ ANNUAL
☐ OTHER

DUE IN		DUE OUT		ESTIMATED VOLUME	EST. TIME	
TIME	DATE	TIME	DATE		HOURS	TENTHS

PROGRAM CARD NO.

CARD ELECTRO (FORM) NO.

SWITCH SETTINGS - ON
☐ PROGRAM UNIT
1 2
☐☐ PROGRAM SELECT
☐ AUTO FEED
☐ AUTO SKIP-AUTO DUPL (VER)
☐ PRINT
☐ LEFT ZERO PRINT
CK PCH
☐☐ SELF CHECK NO.
INS ST
☐☐ CARD INSERT

SPECIAL FEATURES USED
☐ CARD CORRECTION
☐ CARD INSERTION
☐ AUTO LEFT ZERO
☐ ALTERNATE PROGRAM
☐ HI SPEED SKIP
☐ AUXILIARY DUPLICATE (VERIFY)
☐ SELF CHECK NO.
☐ SELF CHECK NO. GENERATOR
☐ VARIABLE LENGTH FEED
☐ INTERSPERSED GANG PUNCH

SOURCE DOCUMENTS USED:

DISPOSITION OF CARDS:

RECEIVED FROM:

DOCUMENTS

CARD FIELD	FUNCTION*	COLUMNS			REMARKS
		FROM	THRU	TOTAL	
Header Data 1, 2, 3, 24, 31		1	17		Dup. from Code 7 card
Card Code ④		18	18	1	Always 8
Comments Line Number ㉒		19	19	1	Numeric
Comments ㊶		20	54	35	Alpha
Update Code ⑫		80	80	1	N C or D
TOTAL KEY STROKES PER CARD—					

FUNCTION*	SYMBOL
DUPLICATE	D
PUNCH	P
SKIP	S
X-SKIP	XS
VERIFY	V
SELF CK. NO.	CK
LEFT ZERO	LZ

Date: ____________

Section________ Page ________

ENFORCEMENT MANAGEMENT SYSTEM

ACTION CARD

MANUAL ACTION CARD

Agency No. ①

County Code ②

Source No. ③ Emission Point No. ㉔

Action No. ㉛ Action Type ㉜ Card Code ④

Action Date ㉝ Mo. Day Yr. Next Action Date ㉞ Mo. Day Yr.

Staff No. ㉟

Action Results ㊱ Hrs. Taken ㊲

Next Action ㊳

Est. Hours to Complete ㊴ Send Letter No. to Source ㊵ Update Code ⑫ N, C, or D

Comments ㉘

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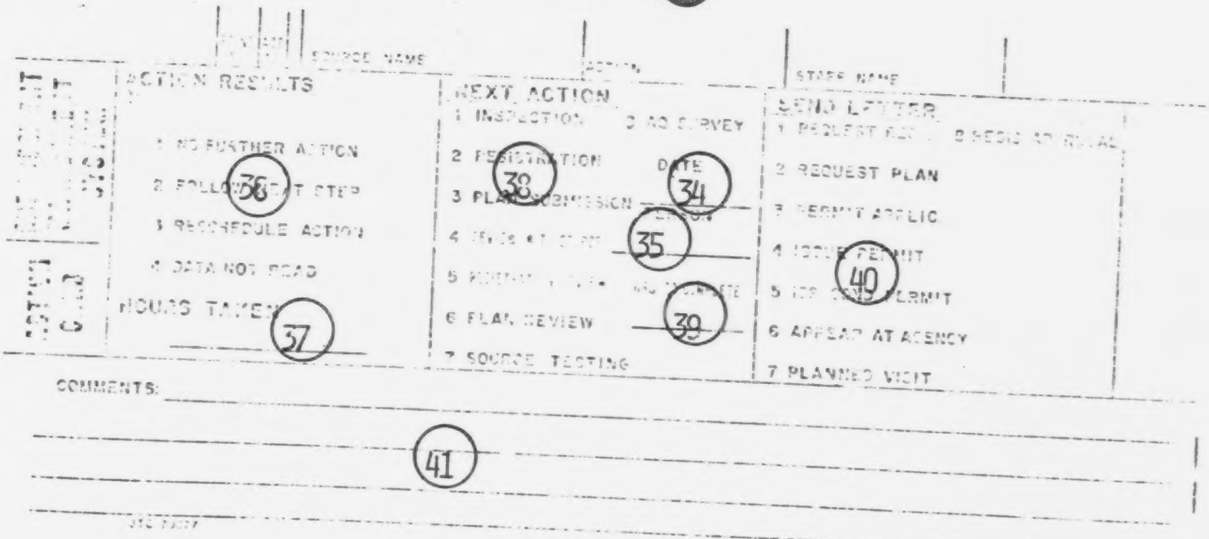

SOURCE NAME ACTION STAFF NAME

ACTION RESULTS
1 NO FURTHER ACTION
2 FOLLOW NEXT STEP ㊱
3 RESCHEDULE ACTION
4 DATA NOT READ
HOURS TAKEN ㊲

NEXT ACTION
1 INSPECTION 8 AQ SURVEY
2 REGISTRATION ㊳ DATE ㉞
3 PLAN SUBMISSION PERSON ㉟
4 [illegible]
5 [illegible] HRS TO COMPLETE
6 PLAN REVIEW ㊴
7 SOURCE TESTING

SEND LETTER
1 REQUEST [illegible] 8 [illegible]
2 REQUEST PLAN
3 PERMIT APPLIC
4 ISSUE PERMIT ㊵
5 [illegible] PERMIT
6 APPEAR AT AGENCY
7 PLANNED VISIT

COMMENTS: ㊶

Computer Generated Action Card. This card has been generated by the system from a previous cycle. It must re-enter the system with any new information added to it. Column 1 through 53 (entries 1,2,3,4,24, 31 and computer generated data) must be duplicated onto another card. Columns 53 through 68 must be blank if entries 33, 34 or 35 are not used. Column 80 (which must have a "C") is also duplicated. Information for entries 34 through 40 is punched into the second card as it is read off the Action Card. Once completed, the Action Card (old card) is discarded.

41. 20-54 Comments are optional. If used, columns 1 through 17 must be duplicated (from above mentioned card). 8 is used as Card Code (entry 4), and an "N" used as Update Code (entry 12). Instructions for Line Code and Comments are the same as entries 22 and 28 respectively.

BIBLIOGRAPHIC DATA SHEET

1. Report No.

2.

3. Recipient's Accession No.

4. Title and Subtitle
Enforcement Management System

Users' Guide

5. Report Date
March, 1972

6.
-

7. Author(s)
S. G. Shanks, R. R. Hippler and E. Cohen

8. Performing Organization Rept. No. TRC 42-088-00

9. Performing Organization Name and Address
TRC--The Research Corporation of New England
125 Silas Deane Highway
Wethersfield, Connecticut 06109

10. Project/Task/Work Unit No.
-

11. Contract/Grant No.
68-02-0079

12. Sponsoring Organization Name and Address
Environmental Protection Agency
Office of Air Programs
Research Triangle Park, N. C. 27711

13. Type of Report & Period Covered
Users' System Guide

14.

15. Supplementary Notes

16. Abstracts

A system was developed for use by air pollution agencies at the state and local levels. The system records, monitors, summarizes agency actions in the enforcement and survellience area. It provides staff members with schedules of planned future actions and summaries of emission source oriented data. The system is available in three versions, tailored to agencies of different resource levels. Two of the levels are computerized and provide automatic monitoring of operational activities.

17. Key Words and Document Analysis. 17a. Descriptors
Scheduling of Activities
Emission Source Data
Action Scheduling & Management
Computerized Management Systems
Enforcement Data Handling
Air Pollution Enforcement Data

17b. Identifiers/Open-Ended Terms
Information Systems
Management Control
Operations Monitoring
Air Pollution Agency
Administration

17c. COSATI Field/Group

18. Availability Statement
Unlimited

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page)
UNCLASSIFIED

21. No. of Pages
-

22. Price

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